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SCRIPPS INSTITUTION OF OCEANOGRAPHY LA JOLLA CALIF
PHYSICAL AND CHEMICAL DATA REPORT: EXJIBIA, SPHERES II - MAI HA--ETC(U)
JUN 75

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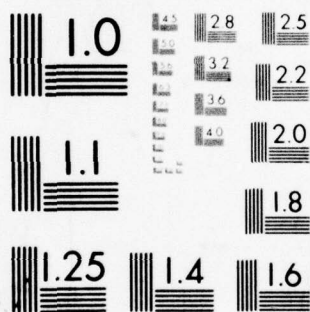
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SIO-REF-75-14

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

PHYSICAL AND CHEMICAL DATA REPORT: EXJIBIA, SPHERES II-MAI HAI, BUOY BOUNCE, NOVA Expeditions - SO Ref. 75-1

ADA035689

UNIVERSITY OF CALIFORNIA SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL AND CHEMICAL DATA

EXJIBIA Expedition
16 July-10 August 1966

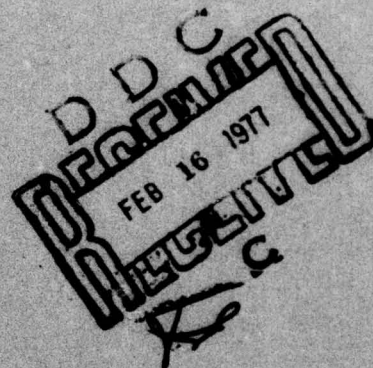
SPHERES II, MAI HAI Expedition
6 September-29 September 1966

BUOY BOUNCE Expedition
13 September-19 September 1966

NOVA Expedition Legs I-VI
23 April-30 September 1967

SIO Reference 75-14
1 June 1976

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See
1473
in back

September, 1976

ERRATA

PHYSICAL AND CHEMICAL DATA REPORT SIO Ref. 75-14

EXJIBIA, SPHERES II-MAI HAI, BUOY BOUNCE and NOVA EXPEDITIONS

INTRODUCTION

Page 3 STANDARD PROCEDURES

Dissolved oxygen was determined by the Winkler method as revised by Carpenter (1965) using the specific equipment described in the Marine Technician's Handbook on Oxygen Analysis, section entitled, "macro-rig" (1971, page 20).

Page 6 EXJIBIA Expedition

Cape San Lucas, not indicated on the position chart, is at the southern tip of the Baja California peninsula. Salinity was determined with an Australian Autolab (1960) inductive salinometer, not a Hytech as reported. Original recordings for 364 S/T/D lowerings to approximately 600 meters are on file in the SIO data archives. Although this data is not yet available for publication, the S/T/D data from the stations where hydrocasts were made has been used to improve the quality of the interpolated data at most of the hydrographic stations. This revised data is available from NODC.

Corrections by station: pp 8-15

Page Stat. Corrections

8	1	The salinity at 98 meters should be footnoted U.
11	21	Footnote A should read: A) An error of -0.01000 in the conductivity ratio (.393 ppt) has been assumed.
12	207	The temperature at 203m is 9.18°C.
13	265	Footnote A should read: A) An error of 0.01000 in the conductivity ratio (.391 ppt) has been assumed.
13	266	The corrected bottom sounding in meters is 3469m.
14	277	The temperature at 76m is 13.51°C.
15	365	The A after the temperature at 155m and the corresponding footnote should be deleted. A new A footnote has been added with the corrected listing.

Corrected listings for stations 1, 207, 277, and 365 are attached to replace those in the data report.

Page 17 SPHERES II-MAI HAI Expedition

Since the publication of this report, the temperature data from this cruise has been reprocessed. Most temperatures below 2500

ERRATA - 2

meters are now available to thousandths, and there have been some changes in the sampling depths, typically 20 meters deeper at the bottom. Bottom depths have been revised based on soundings made closer in time to the tripping of the deep cast and corrected for the depth of the ship's transducer. This corrected data is available from NODC.

The paper by Mantyla has been published:

Mantyla, Arnold W., 1975. On the potential temperature in the abyssal Pacific Ocean. J. Mar. Res., 33, No. 3: 341-354.

Corrections by station: pp 20-22

Page	Stat.	Corrections
20	3	All oxygen values on cast II should be decreased by approximately 1.2%, the result of an error in the standard value used in the computations. The oxygen value at 4299m should be footnoted U. There were problems with the Precision Depth Recorder (PDR) on this station. Because of <u>this</u> , a possible corrected bottom depth of 4540 is probably no better than <u>+ 25m</u> .
20	4	All oxygen values should be decreased by approximately 1.2% (see stat. 3 comment above). In addition the uncorrected oxygen value at 4324m should be 3.78 ml/L.
21	5	The oxygen value at 3631m should be footnoted U.
22	7	The temperature at 2939m should be 1.58°C with the "U" omitted. The value of DT is 34.7. Corrected listings for stations 3 and 4 are attached to replace those in the data report.

Page 49 NOVA Expedition Legs I-VI

Reevaluation of the salinity data from NOVA III using vertical sections of salinity, temperature, and stability and comparison with sections in Reid and Lynn (1971) led to corrections of +.005 to -.020 ppt being applied to much of the salinity data for stations 10 through 20. Incorrect cell constants, the result of improper standardization, had been used at the time of analysis. Corrected listings of depth and salinity are attached.

Salinity is reported to hundredths on NOVA V because of uncertainty in operation of the salinometer, and because the samples were stored in the lab approximately three weeks between sample collection and analysis.

ERRATA - 3

The following should be added to the reference for Leg I:

Reid, Joseph L. and Ronald J. Lynn, 1971. On the influence of the Norwegian-Greenland and Weddell seas upon the bottom waters of the Indian and Pacific Oceans. Deep Sea Res., 18: 1063-1088.

Corrections by station: NOVA I pp 56-59

Page Stat. Corrections

- | | | |
|----|-----|--|
| 56 | H 1 | The oxygen value at 1471m is 0.56 ml/L.
The oxygen value at 2453m is 2.30 ml/L. |
| 57 | H 3 | The Nansen bottles at 4204 and 4703m appear to have leaked. The salinity and oxygen values at these two depths should be footnoted U.
The temperature at 5782m is 1.49°C. |
| 59 | H 6 | The salinity value at 4629m should be footnoted U, and the value of DT should be deleted. |

Corrections by station: NOVA III pp 62-65

Page Stat. Corrections

- | | | | |
|----|----|---|---|
| 62 | 7 | The temperature at 4526m is 1.33°C; the U should be omitted.
The oxygen value at 4996m should be footnoted U. | |
| 62 | 10 | The depth value at 5389m should be footnoted U. | |
| | | <u>Depth</u> | <u>Corrected salinity</u> |
| | | 828m | 34.547 ppt |
| | | 1012 | 34.594 |
| | | 1506 | 34.645 |
| | | 2018 | 34.645 |
| | | 5921 | 34.708 |
| 63 | 12 | <u>Depth</u> | <u>Corrected salinity</u> |
| | | 4045m | 34.707 ppt |
| | | 4986 | 34.704 |
| | | | The oxygen value at this depth should be footnoted U. |
| | | 5643 | 34.708 |
| 63 | 13 | The salinities from 4607 through 5306m have been changed. The U's should be omitted. | |
| 63 | 14 | The salinities from 65 through 1066m have been changed. | |
| 63 | 15 | The salinities from 89 through 857m have been changed.
The oxygen concentration at 89m is 4.12ml/L.
The oxygen value at 392m should be footnoted U. | |
| 64 | 16 | The salinities from 11 through 1141m have been changed. | |

ERRATA - 4

Page Stat. Corrections

Footnote B) has been added, and the U after the salinity value at 505m should be omitted.

64 17 The salinities from 11 through 1048m have been changed.

64 18 The salinities from 24 through 1032m have been changed.

65 19 The salinities from 11 through 5931m have been changed.
The U after the salinity value at 5829m should be omitted.

65	20	<u>Depth</u>	<u>Corrected salinity</u>
		5118m	34.710 ppt
		5801	34.708

The temperature at 5509m is 1.31°C.

The temperature at 5865m is 1.36°C.

Corrections by station: NOVA V p 66

Page Stat. Corrections

66 H 67 The salinities from 1 through 2144m have been changed.
The U after the salinity value at 655m should be omitted.

Corrections by station: NOVA VI pp 67-68

Page Stat. Corrections

67 1 The salinity at 7992m should be 34.712 ppt.
The oxygen value at 8587m should be deleted.
The oxygen value at 9982m should be footnoted U.

67 2 The salinity at 7274m should be 34.709 ppt, and the
oxygen at this depth should be footnoted U.
The salinity at 8256m should be 34.710 ppt.

68 4 The oxygen value at 2812m should be footnoted U.

Corrected listings for most of the stations from NOVA
Expedition are attached to replace those in the data report.

Page 20: LITERATURE CITED

The following should be added:

Anderson, G. C., Compiler, 1971. "Oxygen Analysis", Marine Technician's Handbook, SIO Ref. No. 71-10, Sea Grant Pub. No. 11.

Autolab Ind. Pty. Ltd., Sydney, 1960. Inductively Coupled Salinometer MK 111, Model 601, Operating Inst. and Ills. Parts List.

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

1

LATITUDE		LONGITUDE		PO/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	OCHIRANT LIVES		
25 00.0N		118 30.0W		07/16/66	1021	GMT			3507P	100	15KT	1	020	06	
Z	T	S	02	P04	S103	N02	N03	0T	Z	T	S	02	SIGT	DT	DD
0	20.99	34.378	5.19					367.7	0	20.99	34.378	5.19	24.044	367.7	0
25	20.99	34.375	5.24					367.9	10	20.99	34.377	5.21	24.043	367.8	.029
49	20.86	34.375	5.61					364.6	20	20.99	34.376	5.23	24.042	367.9	.078
74	18.28	34.056	5.68					344.2	30	20.96	34.374	5.32	24.049	367.2	.116
98	17.34	33.816U	5.62						50	20.77	34.360	5.61	24.091	363.3	.194
118	15.03	33.800	4.73					290.8	75	14.25	34.062	5.68	24.514	343.0	.245
144	12.39	33.800	4.01					239.2	100	17.13	34.122	5.54	24.630	312.9	.368
197	10.50	34.047	2.78					180.0	125	14.32	33.749	4.53	25.149	278.6	.443
247	10.18	34.108U	1.18						150	12.27	33.607	3.96	25.632	236.5	.508
297	9.77	34.397	.59					150.3	200	10.48	34.069	2.67	26.163	186.1	.615
346	9.34	34.468	.67					138.2	250	10.16	34.332	1.12	26.424	161.3	.705
395	8.51	34.499	.37					123.4	300	9.75	34.403	.59	26.546	149.5	.785
495	7.43	34.466	.23					110.6	400	8.44	34.499	.36	26.814	122.4	.928
594	6.58	34.458	.06					100.0	500	7.38	34.465	.25	26.965	110.0	1.052
692	5.77	34.466	.24					89.5	600	6.53	34.459	.54	27.078	99.3	1.165
792	5.04	34.465	.33					61.2	700	5.70	34.466	.25	27.190	88.7	1.268
890	4.62	34.464	.40					76.8	800	5.00	34.465	.33	27.273	80.8	1.362
990	4.23	34.484	.58					71.2	1000	4.20	34.490	.60	27.382	70.5	1.532

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

207

LATITUDE		LONGITUDE		PO/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	OCHIRANT LIVES		
30 01.0N		117 54.0W		07/26/66	2006	GMT			3704P	280	04KT	1	280	03	07
Z	T	S	02	P04	S103	N02	N03	0T	Z	T	S	02	SIGT	DT	DD
0	18.26	33.428	5.50					389.3	0	18.26	33.428	5.50	24.027	389.3	0
25	17.54	33.430	5.58					372.5	10	18.09	33.436	5.53	24.075	384.8	.039
49	15.94	33.399	5.94					339.3	20	17.76	33.434	5.56	24.153	377.3	.077
74	14.80	33.357	6.80					316.5	30	17.22	33.425	5.66	24.275	365.8	.114
99	14.30	33.408	5.90					304.6	50	15.88	33.397	5.94	24.563	338.3	.165
124	12.63	33.415	5.27					271.9	75	14.79	33.359	6.00	24.776	318.0	.267
153	10.74	33.614	4.48					224.8	100	14.24	33.408	5.68	24.927	303.6	.346
203	9.18	33.889	3.64					178.7	125	12.56	33.421	5.24	25.278	270.2	.418
252	8.31	33.999	3.34					157.6	150	10.92	33.569	4.56	25.714	228.8	.481
307	7.59	34.057	2.24					143.2	200	9.23	33.877	3.67	26.223	180.4	.585
356	7.10	34.129	.94					131.2	250	8.34	33.997	3.35	26.457	158.1	.672
406	6.74	34.190	.37					122.8	300	7.67	34.051	2.41	26.599	144.7	.750
510	5.99	34.276	.38					106.3	400	6.78	34.184	.41	26.828	123.0	.889
606	5.52	34.339	.25					96.8	500	6.06	34.269	.36	26.990	107.6	1.011
703	5.04	34.397	.27					86.3	600	5.55	34.336	.26	27.106	96.6	1.120
806	4.62	34.429	.34					79.4	700	5.05	34.396	.27	27.212	86.6	1.219
905	4.28	34.457	.48					73.8	800	4.64	34.428	.33	27.284	79.7	1.311
1010	3.95	34.480	.86					68.8	1000	3.98	34.478	.56	27.396	69.2	1.477

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

277

LATITUDE 30 46.0N			LONGITUDE 117 04.0W		MO/DAY/YR 08/07/66		MESSENGER TIME 0601 GMT		BOTTCP 2898P		WIND 310		SPEED 03KT		WEATHER 1		DOMINANT WAVES 02 00		
Z	T	S	02	PC4	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD				
1	19.72	33.52	5.53			.00		417.8	0	19.72	33.52	5.53	23.729	417.8	0				
26	17.08	33.41	5.72			.00		363.5	10	18.76	33.48	5.58	23.942	397.5	.041				
51	14.48	33.30	6.08			.00		316.1	20	17.71	32.44	5.66	24.168	375.9	.080				
76	13.51	33.31	6.04			.01		296.3	30	16.61	32.29	5.79	24.390	354.8	.116				
101	11.38	33.44	4.91			.00		247.7	50	14.57	33.30	6.07	24.779	317.7	.184				
150	10.06	33.72	4.22			.01		205.0	75	13.54	32.31	6.04	24.996	297.1	.261				
200	9.16	34.00	2.82			.01		170.1	100	11.47	33.43	4.96	25.493	249.7	.330				
250	8.56	34.12	2.04			.00		152.2	125	10.47	33.58	4.49	25.786	221.9	.389				
300	7.72	34.11	1.88			.01		141.0	150	10.06	33.72	4.22	25.964	205.0	.443				
350	7.26	34.16	1.23			.01		131.0	200	9.16	34.00	2.82	26.331	170.1	.539				
401	6.84	34.21	.79			.00		121.8	250	8.56	34.12	2.04	26.520	152.2	.622				
450	6.55	34.24	.57			.00		115.9	300	7.72	34.11	1.88	26.638	141.0	.697				
499	6.23	34.28	.45			.01		108.9	400	6.85	34.21	.80	26.839	122.0	.834				
									500	6.23	34.28		26.977	108.9	.956				

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

365

LATITUDE 30 57.0N			LONGITUDE 116 38.5W		MO/DAY/YR 08/10/66		MESSENGER TIME 2352 GMT			BOTTCP 1021P		WIND 330		SPEED 07KT		WEATHER 1		DOMINANT WAVES 300 02 07		
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD					
0A	20.2	33.62						422.5	0	20.20	33.620		23.680	422.5	0					
38	15.77	33.572						337.6	10	19.81	33.584		23.754	415.4	.042					
48	14.46	33.301						315.7	20	18.60	33.518		24.012	390.8	.082					
58	13.78	33.303						302.0	30	17.04	33.439		24.329	360.5	.120					
87	11.69	33.384						257.2	50	14.30	33.382		24.835	312.4	.187					
97	11.46	33.384						253.2	75	12.45	33.349		25.244	273.5	.261					
106	11.24	33.452						244.4	100	11.39	33.403		25.484	250.6	.327					
136	9.98	33.731						202.9	125	10.31	33.611		25.836	217.2	.386					
146	10.24	33.871						196.7	150	10.12	33.894		26.090	193.0	.438					
155	9.90	33.910						188.3	200	9.23	34.056		26.363	167.1	.530					
185	9.58	34.092						175.2	250	8.73	34.128		26.499	154.2	.612					
194	9.29	34.042						169.0	300	8.13	34.159		26.616	143.1	.689					
205	9.21	34.064						166.1	400	6.82	34.173		26.814	124.3	.829					
235	9.07	34.116						160.2												
245	8.84	34.124						156.1												
254	8.65	34.130						152.0												
294	8.23	34.160						144.5												
343	7.38	34.148						133.5												
403	6.88	34.175						123.9												

A) THE SURFACE TEMP AND SALINITY ARE FROM BUCKET SAMPLES. THE INTERPOLATED DATA BETWEEN 0 AND 50 METERS ARE BASED ON THE XBT COVE AT THIS STATION AND THE GENERAL SHAPE OF THE T-S CURVE (FORM 4.5) FOR STATION 364, OCCUPIED APPROXIMATELY 12 HOURS EARLIER AT THE SAME POSITION.

RV HORIZON

MAI MAI EXPEDITION

2

LATITUDE 16 30.0N		LONGITUDE 152 10.0W		PO/DAY/YR 09/15/66		MESSENGER TIME 1900 2250 GRT		BOTTOM 4540P		WIND 070		SPEED 14KT		WEATHER 1		DOMINANT WAVES 060 08 04	
Z	T	S	OZ	P04	S103	N02	N03	DT	Z	T	S	OZ	SIGT	DT	OD		
0	26.57	34.524	4.68					533.5	0	26.57	34.524	4.68	22.518	533.5		0	
10	26.56	34.523	4.69					533.3	10	26.56	34.523	4.69	22.520	533.3		.053	
49	26.58	34.527	4.66					533.6	20	26.57	34.526	4.66	22.519	533.4		.107	
99	23.40	34.621	5.04					420.3	30	26.57	34.525	4.66	22.519	533.4		.160	
198	15.34	34.449	3.72					249.9	50	26.58	34.530	4.66	22.519	533.4		.267	
296	9.50	34.294	1.90					153.6	75	24.40	34.480	4.68	23.182	470.1		.393	
399	8.68	34.535	.30					123.2	100	23.33	34.420	5.04	23.724	418.3		.505	
496	7.34	34.467	.30					109.3	125	21.60	34.770	4.64	24.175	375.3		.665	
594	6.44	34.479	.48					96.7	150	20.50	34.720	4.57	24.435	350.4		.697	
791	5.17	34.499	.57					80.1	200	15.17	34.442	3.68	25.523	246.9		.849	
988	4.36	34.530	.86					69.1	250	11.40	34.320	2.77	26.119	190.3		.962	
1183	3.79	34.555	1.16					61.1	300	9.47	34.314	1.62	26.526	151.6		1.050	
1380	3.26	34.580	1.38					54.8	400	8.67	34.535	.30	26.827	123.1		1.194	
1576	2.84	34.595	1.68					50.0	500	7.30	34.467	.32	26.979	106.7		1.318	
1773	2.43	34.611	1.91					45.4	600	6.29	34.480	.48	27.112	96.0		1.429	
1970	2.15	34.630	2.13					41.7	700	5.68	34.490	.53	27.211	86.7		1.529	
2093A	2.08	34.639	2.31					40.5	800	5.13	34.501	.58	27.287	79.5		1.621	
2166	1.98	34.643	2.38					39.5	1000	4.32	34.532	.48	27.402	68.5		1.788	
2269A	1.93	34.647	2.44					38.8	1200	3.69	34.557	1.18	27.468	60.5		1.937	
2363	1.86	34.653	2.57					37.8	1500	3.00	34.591	1.51	27.580	51.7		2.136	
2485A	1.82	34.657	2.60					37.2	2000	2.13	34.633	2.18	27.689	41.4		2.418	
2682A	1.73	34.664	2.76					36.1	2500	1.81	34.658	2.61	27.724	37.1		2.663	
2878A	1.67	34.672	2.82					35.0	3000	1.64	34.673	2.90	27.759	34.7		2.854	
3074A	1.62	34.673	2.95					34.6	3500	1.53	34.683	3.19	27.775	33.3		3.118	
3270A	1.58	34.676	3.04					34.1	4000	1.45	34.690	3.60	27.786	32.2		3.340	
3466A	1.54	34.683	3.16					33.3									
3662A	1.50	34.683	3.32					33.0									
3760A	1.49	34.689	3.40					32.5									
3858A	1.48	34.690	3.56					32.3									
3956A	1.46	34.689	3.57					32.3									
4054A	1.45																
4153A	1.44	34.691	3.72					32.0									
4202A	1.44	34.694	3.76					31.8									
4250A	1.44	34.697	3.76					31.5									
4299A	1.43	34.696	3.87U					31.5									
4349A	1.43	34.696	3.83					31.5									
4436A	1.43	34.698	3.86					31.4									
4446A	1.42	34.697	3.84					31.4									

RV HORIZON

MAI HAI EXPEDITION

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LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
20 30.0N		150 00.0W		09/18/66		1910 0125 GRT		5272F		060		14KT		1		060 05 05	
Z	T	S	OZ	P04	SICZ	N02	N03	DT	Z	T	S	OZ	SIGT	DT	DD		
0	25.61	35.103	4.74					463.2	0	25.61	35.103	4.74	23.253	463.2	0		
59	22.90	34.980	5.20					395.0	10	25.61	35.100	4.74	23.251	463.4	0.046		
99	20.10	35.011	4.87					319.2	20	25.61	35.100	4.74	23.251	463.4	0.093		
197	13.86	34.306	4.25					230.1	30	25.61	35.100	4.74	23.251	463.4	0.139		
493	6.02	34.204	1.82					112.0	50	25.61	35.100	4.74	23.251	463.4	0.232		
788	4.62	34.475	.84					75.9	75	21.60	35.000	5.07	24.349	358.7	0.336		
982	4.06	34.522	.95					66.7	100	20.03	35.007	4.86	24.778	317.8	0.421		
1277	3.26	34.557	1.39					56.5	125	18.31	34.860	4.71	25.107	286.5	0.497		
1570	2.66	34.596	1.64					48.4	150	16.63	34.650	4.58	25.351	263.3	0.567		
1862	2.20	34.623	2.04					42.7	200	13.72	34.295	4.22	25.721	228.1	0.693		
2156	1.94	34.639	2.35					39.5	250	11.61	34.175	3.64	26.042	197.6	0.802		
2452	1.76	34.654	2.63					37.0	300	9.83	34.122	3.66	26.316	171.6	0.897		
2745	1.65	34.667	2.77					35.3	400	7.25	34.138	1.98	26.727	132.6	1.055		
3041	1.59	34.672	2.98					34.5	500	5.95	34.211	1.01	26.957	110.7	1.104		
3237	1.56	34.683	3.08					33.4	600	5.27	34.320	.89	27.127	94.6	1.293		
3433	1.53	34.684	3.21					33.1	700	4.99	34.460	.87	27.271	81.0	1.388		
3443A	1.52	34.682	3.23					33.2	800	4.58	34.478	.84	27.331	75.3	1.475		
3532	1.52	34.683	3.26					33.1	1000	4.01	34.525	.97	27.430	66.0	1.623		
3541A	1.52	34.686	3.23					32.9	1200	3.46	34.550	1.27	27.505	58.8	1.777		
3630	1.51	34.684	3.34					33.0	1500	2.79	34.568	1.58	27.597	50.1	1.969		
3639A	1.50	34.685	3.31					32.9	2000	2.06	34.632	2.19	27.694	41.0	2.243		
3731	1.50	34.686	3.39					32.8	2500	1.74	34.657	2.66	27.739	36.7	2.483		
3736A	1.50	34.68	3.38					33.2	3000	1.60	34.672	2.95	27.761	34.6	2.710		
3829	1.48	34.687	3.48					32.6	3500	1.52	34.683	3.25	27.776	33.2	2.923		
3834A	1.48	34.688	3.43					32.5	4000	1.47	34.687	3.54	27.783	32.5	3.155		
3933A	1.48	34.686	3.50					32.6	4500	1.45	34.695	3.84	27.791	31.8	3.379		
4030A	1.47	34.688						32.4	5000	1.44	34.700	3.98	27.794	31.4	3.607		
4120A	1.46	34.692	3.63					32.1									
4226A	1.46	34.692	3.70					32.1									
4324A	1.46	34.692	3.74					32.1									
4422A	1.46	34.696	3.77					31.7									
4519A	1.45	34.70	3.86					31.4									
4617A	1.46	34.694	3.83					31.9									
4715A	1.45	34.696	3.86					31.7									
4813A	1.45	34.70	3.96					31.4									
4911A	1.46	34.70	3.96					31.4									
5009A	1.46	34.700	3.98					31.4									
5106A	1.48	34.694	4.01					31.7									
5194A	1.48	34.699	4.03					31.7									
5204A	1.48	34.701	3.97					31.5									

RV ARGO

NOVA EXPEDITION I

H 3

LATITUDE		LONGITUDE		MO/DAY/YR		MESSAGE		TIME		BOTCP		WIND		SPEED		WEATHER		COMINANT WAVES	
25 44.7N		175 58.5E		05/04/67		0115 1510		GMT		5N97P		KT		KT					
Z	T	S	02	PC4	8103	NO2	NO3	DT	Z	T	S	02	SIGT	DT	DD				
G	22.8	35.43						359.8	F	22.80									
4A	22.78	35.432	5.10					359.2	10	22.76		5.11							
29A	22.68	35.426	5.10					356.9	20	22.72		5.13							
46A	21.57	35.377	5.33					330.6	30	22.63		5.15							
66B	20.32	35.267	5.32					306.3	50	21.30		5.33							
90B	19.43	35.211	5.47					248.1	75	19.94		5.37							
136B	18.24	35.063	5.54					270.1	100	19.13		5.49							
20MC	17.12	34.793	5.32					263.4	125	18.48		5.52							
313C	14.51	34.575	4.92					223.5	150	18.01		5.51							
418C	11.70	34.350	4.94					186.3	200	17.24		5.36							
476D	10.12	34.227	4.73					168.5	250	16.16		5.14							
570D	7.51	34.074	3.63					140.8	300	14.67		4.56							
624D	6.28	G 34.071G	2.986					125.1	400	12.19		4.94							
660D	5.50	G 34.057G	2.726					116.9	500	9.43		4.50							
739D	4.90	G 34.088G	2.176					107.9	600	6.81		3.26							
785D	4.50	G 34.178G	1.386					97.0	700	5.11		2.50							
1009B	3.52	G 34.360G	.886					73.7	800	4.40		1.35							
1064E	3.41	G 34.384G	.906					70.9	1000	3.54		.90							
1128E	3.24	G 34.435G	.956					65.5	1200	3.07		1.05							
1432E	2.62	G 34.536G	1.486					52.6	1500	2.50		1.60							
1735E	2.14	G 34.591G	2.016					44.6	2000	1.95		2.35							
2030E	1.94	G 34.625G	2.390					40.5	2500	1.84		2.81							
4204C	1.48	34.640U	2.55U						3000	1.73		3.19							
4422F	1.44	34.699	3.84					31.4	3500	1.63		3.49							
4703C	1.45	34.667U	.90U						4000	1.52		3.71							
5057F	1.46	34.700	4.14					31.4	4500	1.44		3.90							
5301C	1.44	34.700	4.04					31.3	5000	1.46		4.13							
5543F	1.48	34.703	4.24					31.4	5500	1.47		4.20							
5641F	1.48	34.703						31.4											
5739F	1.48	34.702	4.23					31.4											
5782F	1.49	34.706	4.19					31.2											

RV ARGO

NOVA EXPEDITION III

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LATITUDE 15 10.5N		LONGITUDE 178 56.6W		MO/DAY/YR 06/22/67		MESSENGER TIME 0903 1207 GHT		BOTTCP 5104P		WIND 100		SPEED 08KT		WEATHER 1		DOMINANT WAVES 100 07 08	
Z	T	S	OZ	P04	S103	N02	N03	DT	Z	T	S	OZ	SIGT	DT	DD		
3	28.0	34.46						582.0	0	28.0	34.460		22.011	582.0		0	
11A	27.90	34.458	4.77					579.1	10	27.91	34.458		22.039	579.3		.050	
31A	27.88	34.453	4.79					578.8	20	27.89	34.456	4.78	22.043	578.9		.116	
51A	27.08	34.459	4.57					578.4	30	27.88	34.453	4.79	22.044	578.8		.174	
65A	26.27	34.780	4.52					506.1	50	27.88	34.459	4.57	22.049	578.4		.290	
78A	25.64	34.891	5.02					479.4	75	25.74	34.874	5.01	23.040	483.6		.423	
107A	24.60	35.004	4.98					435.2	10P	24.87	35.047	4.95	23.437	445.7		.541	
122A	23.70	35.14	4.85					405.7	125	23.55	35.154	4.85	23.911	400.4		.647	
146A	22.30	35.20	4.86					365.0	150	22.04	35.179	4.83	24.363	357.4		.743	
192A	18.10	34.85	4.35					282.3	200	17.45	34.787	4.26	25.262	271.8		.904	
240A	14.49	34.50	3.99					228.5	250	13.84	34.452	4.10	25.817	219.0		1.030	
288A	11.40	34.28	4.29					186.2	300	10.62	34.225	4.09	26.259	177.0		1.132	
297A	10.78	34.234	4.14					178.9	400	7.68	34.192	2.48	26.708	134.4		1.294	
358A	6.64	34.164	3.24					150.2	500	6.49	34.332	1.41	26.983	168.3		1.423	
478A	6.64	34.299	1.40					112.6	600	6.06	34.445	1.41	27.129	94.5		1.532	
573A	6.20	34.428	1.43					97.5	700	5.54	34.465	1.34	27.224	85.4		1.630	
765A	5.21	34.49	1.30					81.2	800	5.04	34.449	1.31	27.295	78.7		1.721	
958A	4.38	34.528	1.42					69.5	1000	4.24	34.533	1.46	27.412	67.6		1.807	
1055A	4.06	34.539	1.54					65.4	120P	3.62	34.558	1.80	27.495	59.7		2.033	
1153A	3.72	34.553	1.80					61.0	150P	2.92	34.587	1.83	27.584	51.3		2.230	
1445	3.10	34.579	1.77					53.4	200P	2.04	34.644	2.44	27.705	39.9		2.513	
1541	2.79	34.592	1.88					49.8	250P	1.76	34.660	2.03	27.739	36.7		2.759	
2322	1.80	34.660	2.75					37.4	300P	1.59	34.673	3.03	27.763	34.4		2.987	
2713	1.66	34.659	2.93					35.9	350P	1.50	34.686	3.29	27.780	32.8		3.210	
2811	1.62	34.663	3.00					35.4	400P	1.44	34.667	3.92	27.782	32.6		3.423	
3020	1.45	34.685	3.61					32.5	450P	1.35	34.698	4.06	27.800	30.9		3.652	
3901P	1.48	34.687	3.94					32.6	500P	1.32	34.699		27.803	30.6		3.868	
4100	1.44	34.687	3.79					32.3									
4206	1.41	34.694	3.81					31.6									
4256	1.40	34.692	3.93					31.6									
4306	1.40	34.690	3.92					31.8									
4355	1.38	34.780	3.99					30.9									
4405	1.30	34.695	4.26					31.3									
4456	1.35	34.697	4.11					30.9									
4505	1.30	34.698	4.05					30.9									
4526	1.33	34.698	4.16					30.7									
4545	1.33	34.699	4.19					30.6									
4566	1.32	34.698	4.27					30.7									
4584	1.32	34.699	4.25					30.4									
4996U	1.33	34.698	4.69U					30.7									

RV ARGO

NOVA EXPEDITION III

10

LATITUDE 9 53.5N		LONGITUDE 179 00.0W		MO/DAY/YR 06/25/67		MESSENGER TIME 1410 1620 GMT		BOTTOM 6152F	WIND 080	SPEED 13KT	WEATHER 2	DOMINANT WAVES 080 07 10			
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
0C	28.0	34.23						598.6	0	28.0	34.23		21.838	598.6	0
11C	28.00	34.24	4.62					597.4	10	28.00	34.24		21.845	597.9	.060
31C	28.00	34.25	4.63					597.1	20	28.00	34.24	4.62	21.849	597.5	.120
69C	27.02	34.90 D	4.90					520.1	30	28.00	34.25	4.63	21.853	597.2	.140
88C	24.68	34.98 D	5.06					445.0	50	27.51	34.40	4.74	22.127	570.9	.297
107C	21.60	34.94	4.74					363.0	75	26.39	34.94	4.94	22.888	498.1	.431
126C	18.84	34.82	4.87					302.1	100	22.76	34.96	4.91	23.995	392.4	.543
159C	14.64	34.52	3.10					230.1	125	18.98	34.83	4.11	24.914	304.8	.631
182C	12.61	34.47 D	2.81					194.1	150	15.67	34.59	3.32	25.528	246.4	.701
208C	11.13	34.58	.87					159.4	200	11.48	34.54	1.48	26.548	168.6	.807
236C	10.75	34.68	.46					145.5	250	10.56	34.70	.46	26.642	140.6	.887
291C	10.05	34.72 D	.45					130.9	300	9.95	34.72	.47	26.758	129.6	.958
354C	9.41	34.67	.62					124.4	400	9.02	34.64	.62	26.857	120.2	1.090
509C	8.15	34.60	.61					110.7	500	8.22	34.60	.61	26.950	111.4	1.214
662C	6.82	34.56	.68					95.5	600	7.34	34.57	.65	27.055	101.5	1.330
828C	5.74	34.547D	1.89					83.1	700	6.55	34.55	.77	27.150	92.5	1.437
1012C	4.77	34.594D	1.36					68.6	800	5.90	34.55	1.51	27.228	85.0	1.536
1506C	3.01	34.645	1.90					47.6	1000	4.83	34.59	1.35	27.392	69.5	1.713
2018C	2.10	34.645	2.55					40.2	1200	3.98	34.62	1.58	27.511	58.3	1.863
2445A	1.84	34.659	2.75					37.2	1500	3.03	34.65	1.89	27.622	47.8	2.054
3394A	1.52	34.680	3.37					33.4	2000	2.12	34.65	2.53	27.700	40.3	2.324
3487A	1.50	34.679	3.49					33.3	2500	1.41	34.66	2.77	27.737	36.9	2.565
4060A	1.36	34.694	4.01					31.2	3000	1.62	34.68	3.03	27.763	34.4	2.794
4542A	1.30	34.703	4.34					30.1	3500	1.50	34.68	3.50	27.775	33.3	3.016
5030A	1.32	34.709	4.45					29.8	4000	1.37	34.69	3.97	27.794	31.5	3.234
5389B	1.33	34.652U	4.65U						4500	1.30	34.70	4.32	27.807	30.2	3.445
5518A	1.36	34.705	4.57					30.4	5000	1.32	34.71	4.45	27.811	29.8	3.657
5871A	1.40	34.708	4.52					30.4	5500	1.36	34.71	4.57	27.805	30.4	3.877
5921A	1.40	34.708	4.49					30.4	6000	1.42	34.71	4.56	27.803	30.6	4.107
5970A	1.41	34.708	4.58					30.5							
6019A	1.42	34.706	4.55					30.7							
6039A	1.42	34.709	4.50					30.5							
6040B	1.41	34.704	4.60					30.8							
6059A	1.42	34.706	4.58					30.7							

RV ARGO

NOVA EXPEDITION III

12

LATITUDE 6 00.0N		LONGITUDE 179 00.0W		MO/DAY/YR 06/28/67		MESSENGER TIME 0610 6PT		BOTTOM 5722F	WIND 070	SPEED 13KT	WEATHER 2	DOMINANT WAVES 060 04 09			
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
3	28.0	34.15						629.5							
4045A	1.32	34.707	4.10					30.0							
4986A	1.29	34.704	3.89U					30.0							
5643A	1.36	34.708						30.2							

RV ARGO

NOVA EXPEDITION III

13

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
3 55.6N		178 47.3W		06/28/67		2303 1818 GMT			5375M	110	08KT	1	080 06 09		
Z	T	S	02	P04	SIC3	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
3B	29.0	34.49						611.5	0	29.0	34.490		21.703	611.5	
10B	29.00	34.503	4.55					610.6	10	29.00	34.503	4.55	21.712	610.6	.061
53B	28.98	34.507	4.60					607.1	20	28.98	34.504	4.56	21.721	609.8	.122
62B	28.98	34.525	4.58					605.8	30	28.95	34.505	4.57	21.729	609.0	.183
110B	26.13	34.777	3.98					502.1	50	28.91	34.507	4.60	21.746	607.4	.305
137B	21.10	34.794	3.58					360.5	75	28.15	34.620	4.44	22.082	575.2	.454
198B	11.43	34.583	1.56					164.4	100	26.97	34.758	4.08	22.568	526.7	.593
382C	8.32	34.620	1.62					111.6	125	23.49	34.779	3.74	23.644	425.9	.713
599C	6.44	34.560	1.10					90.6	150	18.76	34.715	3.18	24.884	307.8	.806
796C	5.29	34.540	1.71					78.4	200	11.40	34.584	1.56	26.398	163.8	.926
101AC	4.44	34.56	1.98					67.7	250	10.55	34.582	1.58	26.549	144.5	1.007
7496C	1.83	34.661	3.22					37.0	300	9.71	34.569	1.59	26.700	135.1	1.081
3081C	1.02	34.692						31.8	400	8.12	34.618	1.57	26.977	106.9	1.210
4125C	1.32	34.695						30.9	500	7.14	34.597	1.55	27.103	96.9	1.320
4371C	1.27	34.705						29.8	600	6.43	34.580	1.18	27.170	90.5	1.422
4607D	1.24	34.708	4.49					29.4	700	5.79	34.546	1.41	27.242	83.6	1.519
4617C	1.24	34.718						29.2	800	5.27	34.540	1.77	27.301	78.2	1.609
4866C	1.28	34.704						29.9	1000	4.50	34.548	1.46	27.403	68.5	1.776
5068C	1.28	34.705						29.9	1200	3.91	34.576	2.17	27.479	61.3	1.976
5256C	1.31	34.706						30.0	1500	3.17	34.602	2.45	27.573	52.4	2.128
5262D	1.31	34.710	4.56					29.7	2000	2.29	34.642	2.87	27.683	41.9	2.417
5306C	1.32	34.708						29.9	2500	1.87	34.642	3.72	27.734	37.0	2.665
									3000	1.68	34.672	3.62	27.755	35.1	2.897
									3500	1.43	34.684	3.96	27.775	33.2	3.171
									4000	1.37	34.687	4.74	27.795	31.4	3.328
									4500	1.75	34.706	4.45	27.819	29.6	3.546
									5000	1.58	34.705	4.53	27.811	29.7	3.714

RV ARGO				NOVA EXPEDITION III												18	
LATITUDE		LONGITUDE		PO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
1 58.05		179 01.0W		07/02/67		1210 GMT		5585M		090		08KT		1		150 04 08	
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DO		
0	28.1	35.37	4.4					519.8									
24	27.95	35.371	4.59					515.0									
96	27.82	35.366	4.62					511.3									
153	20.44	35.602	2.97					285.1									
209	15.18	35.189	3.04					192.5									
282	11.14	34.813	2.57					142.4									
374	10.02	34.742	1.92					124.8									
512	7.38	34.576	2.18					101.7									
1032	4.61	34.562	2.12					69.3									

RV ARGO				NOVA EXPEDITION III												19	
LATITUDE 4 01.4S		LONGITUDE 178 44.5W		MO/DAY/YR 07/03/67		MESSENGER TIME 0015 1033 GMT		BOTTOM 5964M		WIND 150		SPEED 08KT		WEATHER 1		DOMINANT WAVES	
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DO		
0	29.8	35.40	4.7					546.2	0	29.0	35.400	4.7	22.385	546.2		0	
11A	28.73	35.382	4.57					538.9	10	28.75	35.383	4.58	22.456	539.4		.054	
54A	28.64	35.387	4.66					535.7	20	28.71	35.385	4.59	22.470	538.1		.108	
87A	28.16	35.561	4.49					508.0	30	28.69	35.387	4.61	22.479	537.2		.162	
145A	25.66	36.053	3.56					396.4	50	28.65	35.387	4.65	22.493	535.9		.270	
206A	17.71	35.386	2.64					234.2	75	28.39	35.485	4.58	22.650	520.8		.403	
315A	9.70	34.718	2.27					125.4	100	27.91	35.724	4.21	22.991	488.3		.530	
419A	8.48	34.638	1.96					112.6	125	26.92	35.948	3.92	23.478	441.8		.647	
641A	6.14	34.551	2.32					87.6	150	25.06	36.001	3.47	24.098	382.6		.751	
834A	4.98	34.549	2.33					74.3	200	18.56	35.450	2.72	25.495	249.6		.913	
1054A	4.20	34.566	2.31					64.8	250	13.58	35.046	2.49	26.327	170.4		1.021	
1720B	2.52	34.630	2.72					44.7	300	10.36	34.793	2.32	26.747	130.6		1.100	
2098B	2.11	34.653	2.92					39.7	400	8.70	34.652	2.00	26.912	115.0		1.230	
3246B	1.57	34.691	3.54					32.9	500	7.54	34.593	2.03	27.042	102.7		1.347	
3924B	1.37	34.697	3.96					31.1	600	6.52	34.559	2.22	27.158	91.7		1.452	
4623C	1.26	34.705	4.42					29.7	700	5.72	34.547	2.32	27.252	82.8		1.549	
4655B	1.26	34.712	4.51					29.2	800	5.14	34.547	2.33	27.322	76.1		1.637	
4950B	1.24	34.712	4.58					29.1	1000	4.36	34.561	2.31	27.421	66.8		1.808	
5246B	1.27	34.713	4.55					29.2	1200	3.74	34.581	2.37	27.501	59.2		1.946	
5540B	1.31	34.714	4.64					29.4	1500	2.95	34.611	2.55	27.600	49.8		2.140	
5825C	1.34	34.706	4.68					30.2	2000	2.19	34.649	2.87	27.696	40.7		2.416	
5836B	1.34	34.709	4.64					30.8	2500	1.85	34.672	3.13	27.742	36.3		2.652	
5931B	1.36	34.706	4.62					30.3	3000	1.63	34.687	3.40	27.771	33.6		2.885	
									3500	1.48	34.694	3.69	27.787	32.1		3.103	
									4000	1.35	34.698	4.01	27.800	30.9		3.316	
									4500	1.27	34.703	4.34	27.810	30.0		3.524	
									5000	1.24	34.712	4.57	27.819	29.1		3.731	
									5500	1.30	34.714	4.63	27.816	29.3		3.943	

RV ARGO				NOVA EXPEDITION III												20	
LATITUDE 7 42.5S		LONGITUDE 178 24.1W		PO/DAY/YR 07/04/67		MESSENGER TIME 0750 0250 GMT		BOTTOM 6027M		WIND 080		SPEED 08KT		WEATHER 1		DOMINANT WAVES 140 04 10	
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD		
0	28.7	35.49	4.6					538.2	0	28.7	35.490	4.6	22.553	538.2	0		
10A	28.58	35.467	4.58					528.8	10	28.58	35.467	4.58	22.575	528.0	.053		
52A	28.60	35.487	4.60					527.2	20	28.58	35.471	4.58	22.577	527.8	.106		
83A	28.60	35.56	4.38					522.8	30	28.59	35.476	4.59	22.579	527.6	.159		
138A	27.80	35.778	4.86					471.8	50	28.60	35.486	4.60	22.583	527.2	.264		
195A	23.04	36.095	3.56					318.5	75	28.60	35.541	4.38	22.624	523.3	.396		
300A	13.98	35.826	2.46					179.8	100	28.26	35.640	4.22	22.811	505.5	.526		
398A	8.80	34.666	2.48					114.3	125	27.66	35.733	4.11	23.013	486.2	.651		
614A	6.44	34.574	2.67					89.6	150	26.74	35.863	3.97	23.472	442.4	.769		
800A	5.38	34.556	2.48					77.3	200	22.58	36.052	3.50	24.871	389.0	.960		
1015A	4.40	34.546	2.43					66.3	250	18.14	35.845	2.93	25.704	229.7	1.099		
1537B	2.80	34.613	3.14U					48.3	300	12.98	35.826	2.46	26.230	179.8	1.205		
2045B	2.14		3.16						400	8.78	34.665	2.40	26.911	115.1	1.361		
2536B	1.79	34.671	3.28					36.0	500	7.64	34.614	2.53	27.037	103.2	1.478		
2974B	1.65	34.684	3.58					34.0	600	6.29	34.579	2.65	27.163	91.2	1.544		
3363B	1.54	34.684	3.71					33.2	700	5.84	34.563	2.60	27.249	83.1	1.688		
3751B	1.45	34.696	3.96					31.7	800	5.20	34.546	2.48	27.310	77.3	1.778		
4141B	1.28	34.710	4.47					29.5	1000	4.45	34.546	2.43	27.349	68.8	1.936		
4336B	1.26	34.710	4.62					29.3	1200	3.73	34.562	2.53	27.487	60.5	2.085		
4531B	1.28	34.711	4.58					29.4	1500	2.88	34.607	2.71	27.604	49.5	2.280		
4726B	1.27	34.709	4.49					29.5	2000	2.27	34.654	3.12	27.706	39.8	2.552		
4923B	1.26	34.708	4.54					29.5	2500	1.81	34.672	3.27	27.746	36.8	2.791		
5067C		34.725U	4.63						3000	1.64	34.684	3.51	27.768	33.9	3.016		
5114B	1.28	34.710	4.64					29.5	3500	1.51	34.688	3.78	27.780	32.7	3.237		
5314B	1.38	34.706	4.61					29.9	4000	1.34	34.706	4.29	27.808	30.2	3.458		
5505B	1.31	34.709	4.64					29.8	4500	1.28	34.711	4.52	27.814	29.4	3.655		
5801B	1.36	34.708	4.63					31.2	5000	1.27	34.709	4.59	27.815	29.5	3.862		
5845C	1.36	34.708	4.71					30.2	5500	1.31	34.709	4.64	27.812	29.8	4.076		
5902B	1.36	34.710	4.72					30.8									

RV ARGO				NOVA EXPEDITION III												14
LATITUDE		LONGITUDE		MO/DAY/YR		PASSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
2 09.0N		170 57.9W		06/30/67		0911 GMT			5399P		KT					
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	C2	SIGT	DT	DD	
0	28.6	34.97						564.3								
65	28.06	35.172	4.48					532.8								
109	28.00	35.243	4.27					525.8								
158	17.04	34.718	3.45					267.4								
206	12.68	34.805	3.08					170.8								
273	11.35	34.802	2.48					146.8								
379	9.54	34.697	1.68					124.4								
627	6.30	34.561	1.68					88.8								
821	5.00	34.554	2.01					74.1								
1066	4.54	34.553	2.23					69.2								

RV ARGO				NOVA EXPEDITION III												15
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
1 00.50N		179 08.2W		07/01/67		0210 GMT		4967P	170	08KT	1	150 05 09				
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD	
0	28.5	35.04						556.1								
89	27.66	35.373	4.12					505.9								
138	21.06	35.076						339.1								
196	16.72	35.057	3.34					239.6								
254	12.50	34.892	2.83					161.0								
313	11.06	34.786	2.34					143.0								
392	9.42	34.690	2.06U					123.1								
857	5.15	34.548	2.11					76.2								

RV ARGO				NOVA EXPEDITION III												16
LATITUDE		LONGITUDE		PO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
0 01.0S		179 07.9W		07/01/67		1110 1556 GMT			5413P	120	08KT	1				
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S1GT	DT	DD	
0	28.0	35.48	4.5					514.5								
11	27.78	35.381	4.58					509.8								
50	27.47	35.369	4.56					500.3								
108	26.84	35.355	4.03					457.9								
132	21.97	35.5408	3.45					329.5								
167	20.28	35.581	3.88					282.5								
215	14.64	35.814	3.28					194.8								
241A	13.20	34.958	3.17					170.8								
261	12.88	34.918	3.21					166.8								
317	11.35	34.826	2.42					145.1								
340A	10.74	34.788	1.78					137.9								
392A	9.22	34.698	1.98					119.9								
505A	7.56	34.595	2.48					102.7								
825A	5.32		2.41													
1141A	3.92	34.573	2.34					61.5								

B) A RECORDING ERROR OF 10 OHMS (.581 PPT) HAS BEEN ASSUMED.

RV ARGO				NOVA EXPEDITION III												17
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
1 00.1S		179 08.0W		07/02/67		0831 GMT			5494M	140	08KT	1	100 04 10			
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	S1GT	DT	DD	
0	28.1	35.37	4.7					519.8								
11	27.88	35.367	4.67					511.1								
84	27.60	35.368	4.51					504.4								
129	25.83	35.364	3.69					413.1								
220	14.48	35.854	3.27					187.8								
313	11.81	34.888	2.49					148.5								
383	9.60	34.713	1.97					124.2								
523	7.24	34.568	2.25					102.4								
854	5.19	34.567	2.15					74.8								
1048	4.34	34.545	2.28					67.8								

RV ARGO				NOVA EXPEDITION V										M 67		
LATITUDE 29 56.0S			LONGITUDE 176 43.5E	MO/DAY/YR 09/06/67	MESSENGER TIME 0013 GMT				BOTTOM 4260P	WIND SPEED KT			WEATHER 2	DOMINANT WAVES		
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD	
1	17.70	35.62						217.0								
12	17.67	35.60						217.7								
198	16.22	35.51						191.5								
392	13.40	35.14						160.0								
635	9.14	34.63						123.2								
645	9.02	34.70	U													
655	8.83	34.63						118.4								
877	6.23	34.59	U													
1169	4.19	34.46						72.6								
1656	2.72	34.58						50.1								
2144	2.13	34.63						41.6								
2631	1.92	34.68						36.2								
3117	1.85	34.69						35.0								
3603	1.86	34.69						35.0								
4091	1.92	34.69						35.5								

RV ARGO				NOVA EXPEDITION VI										1		
LATITUDE 31 45.0S			LONGITUDE 177 15.0W	MO/DAY/YR 09/20/67	PASSENGER TIME 0540 0010 GMT				BOTTOM 9992P	WIND SPEED KT			WEATHER	DOMINANT WAVES		
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD	
10	17.62	35.632	5.27					214.2	0	17.62	35.632	5.27	25.867	214.2	0	
35	17.42	35.623	5.29					210.3	10	17.62	35.632	5.27	25.867	214.2	.021	
48	17.35	35.630	5.30					208.2	20	17.55	35.627	5.28	25.880	213.0	.043	
88	16.92	35.618	5.24					199.2	30	17.47	35.624	5.29	25.898	211.3	.064	
126	16.02	35.505	4.84					187.5	50	17.34	35.631	5.56	25.934	207.8	.106	
166	15.44	35.490	5.16					176.0	75	17.11	35.630	5.35	25.990	202.5	.158	
204	14.68	35.394	5.03					167.1	100	16.64	35.581	5.08	26.062	195.6	.209	
289	13.16	35.21	4.75					150.2	125	16.04	35.508	4.85	26.145	187.8	.257	
381	11.52	35.004	4.74					135.0	150	15.66	35.495	5.01	26.223	180.4	.305	
475	9.76	34.759	4.50					123.3	200	14.76	35.405	5.05	26.354	168.0	.394	
590	8.12	34.569	4.65					112.5	250	13.84	35.292	4.86	26.464	157.5	.479	
718A	6.72	34.436	4.86					103.4	300	12.97	35.186	4.75	26.562	148.2	.559	
946B	5.40	34.452U	4.55U						400	11.15	34.952	4.69	26.729	132.4	.708	
965A	5.15	34.416	4.41					86.1	500	9.36	34.710	4.51	26.852	120.7	.845	
1053B	4.58	34.425	4.22					79.3	600	7.99	34.555	4.67	26.946	111.8	.971	
1667B	2.82	34.539	3.82					54.0	700	6.89	34.450	4.84	27.022	104.6	1.090	
1947B	2.52	34.607	3.48					46.4	800	6.34	34.447	4.78	27.094	97.8	1.202	
2064B	2.43	34.622	3.67U					44.5	1000	4.86	34.410	4.33	27.246	83.4	1.405	
2516B	2.11	34.655	3.42					39.5	1200	3.91	34.447	4.07	27.377	70.9	1.581	
3096B	1.80	34.699	4.66					33.9	1500	3.03	34.506	3.87	27.510	56.4	1.806	
3212B	1.76	34.723	4.14					31.8	2000	2.48	34.615	3.47	27.646	45.5	2.119	
4074B	1.16	34.728	4.80					27.3	2500	2.12	34.655	3.42	27.707	39.7	2.389	
4864B	1.06	34.720	4.81					27.3	3000	1.84	34.648	3.94	27.756	35.1	2.635	
6005C	1.17	34.720	4.57					28.0	3500	1.56	34.724	4.39	27.806	30.3	2.854	
7000C	1.30	34.716	4.56					29.2	4000	1.21	34.728	4.75	27.833	27.7	3.046	
7992C	1.46	34.712	4.67					30.5	4500	1.11	34.724	4.81	27.838	27.3	3.234	
8587C		34.714							5000	1.06	34.720	4.78	27.837	27.3	3.421	
9161C	1.67	34.714	4.53					31.8	5500	1.10	34.720	4.68	27.835	27.6	3.613	
9679C	1.75	34.714	4.52					32.4	6000	1.17	34.720	4.57	27.830	26.0	3.814	
9982C	1.82	34.7396	4.26U						6500	1.23	34.718	4.57	27.825	28.5	4.026	
									7000	1.30	34.716	4.56	27.818	29.2	4.250	
									7500	1.38	34.714	4.62	27.811	29.9	4.487	
									8000	1.46	34.712	4.67	27.804	30.5	4.739	
									8500	1.55	34.713	4.62	27.798	31.1	5.005	
									9000	1.64	34.714	4.56	27.792	31.7	5.286	
									9500	1.72	34.714	4.51	27.786	32.2	5.583	

RV ARGO

NOVA EXPEDITION VI

2

LATITUDE 31 11.0S		LONGITUDE 177 08.0W		MO/DAY/YR 09/24/67		MESSENGER TIME 1921 GMT				BOTTOM 8774P		WIND 270		SPEED 22KT		WEATHER 1		DOMINANT WAVES 270 08 08	
Z	T	S	02	PC4	SIO3	NO2	NO3	DT	Z	T	S	02	SIGT	DT	DD				
3335	1.62	34.761U	4.04																
4322	1.17	34.723	4.43					27.8											
5307	1.10	34.720	4.61					27.6											
6291	1.19	34.641U	4.59																
7274	1.34	34.709	4.09U					30.0											
8256	1.50	34.710	4.40					31.0											

RV ARGO

NOVA EXPEDITION VI

4

LATITUDE 27 28.0S		LONGITUDE 175 28.0E		MO/DAY/YR 09/27/67		MESSENGER TIME 0923 1423 GMT				BOTTOM 4632P		WIND 160		SPEED 04KT		WEATHER 2		DOMINANT WAVES 160 03 12	
Z	T	S	02	PC4	SIO3	NO2	NO3	DT	Z	T	S	02	SIGT	DT	DD				
0	20.3	35.559						284.6	0	20.3	35.559		25.126	284.6	0				
35	20.09	35.601	5.20					276.3	10	20.24	35.571		25.151	262.3	.028				
49	19.70	35.652	5.27					262.8	20	20.18	35.583		25.177	279.9	.057				
99	18.62	35.673	4.89					234.9	30	20.12	35.595		25.202	277.5	.084				
167	17.47	35.604	4.77					212.8	50	19.68	35.653	5.27	25.364	262.1	.139				
226	16.25	35.500	4.64					192.9	75	19.10	35.682	5.12	25.536	245.7	.203				
293	14.88	35.367	4.55					173.2	100	18.60	35.672	4.89	25.654	234.5	.264				
391	12.69	35.103	4.43					149.1	125	18.17	35.657	4.82	25.749	225.4	.322				
489	10.83	34.882	4.47					132.0	150	17.75	35.629	4.78	25.832	217.5	.379				
605	8.66	34.639	4.50					115.2	200	16.80	35.548	4.70	26.000	201.6	.486				
732	7.36	34.501	4.73					107.0	250	15.74	35.455	4.60	26.169	185.5	.587				
888	6.00	34.419						95.7	300	14.72	35.348	4.54	26.319	171.3	.680				
1056	4.90	34.432	4.26					82.2	400	12.51	35.082	4.43	26.572	147.3	.849				
1173	3.92	34.470	4.02					69.2	500	10.60	34.854	4.48	26.753	139.1	.999				
1467A	2.96	34.576	3.42					52.4	600	8.74	34.648	4.57	26.904	115.8	1.133				
1879A	2.35	34.629	3.49					43.4	700	7.63	34.528	4.70	26.979	108.6	1.257				
2186A	2.12	34.655	3.50					39.6	800	6.73	34.454	4.69	27.047	102.2	1.374				
2301A	2.08	34.662	3.51					38.8	1000	5.27	34.420	4.40	27.207	87.1	1.587				
2378A	2.02	34.675	3.54					37.4	1200	3.78	34.481	3.95	27.418	67.0	1.763				
2812A	1.90	34.676	3.77U					36.4	1500	2.89	34.584	3.43	27.584	51.3	1.971				
3248A	1.86	34.688	3.59					35.2	2000	2.25	34.640	3.49	27.685	41.8	2.253				
3346A	1.85	34.69	3.56					35.0	2500	1.96	34.673	3.55	27.735	37.1	2.503				
3463A	1.84	34.681	3.62					35.6	3000	1.88	34.681	3.58	27.747	35.9	2.743				
3707A	1.86	34.690	3.65					35.0	3500	1.84	34.682	3.62	27.751	35.5	2.926				
417CA	1.90	34.680	3.66					36.1	4000	1.88	34.685	3.66	27.750	35.6	3.238				
4597A	1.95	34.684	3.66					36.1	4500	1.94	34.683	3.66	27.745	36.1	3.502				

UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

EXJIBIA Expedition
16 July-10 August 1966

Sponsored by
Office of Naval Research

SPHERES II, MAI HAI Expedition
6 September-29 September 1966

Sponsored by
Office of Naval Research
National Science Foundation
Marine Research Committee

BUOY BOUNCE Expedition
13 September-19 September 1966

Sponsored by
National Science Foundation

NOVA Expedition
23 April-30 September 1967

Sponsored by
Office of Naval Research
National Science Foundation

SIO Reference 75-14

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Approved for distribution:

W. A. Nierenberg
W. A. Nierenberg, Director

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INTRODUCTION

The data presented in this report were collected on the following Expeditions:

EXJIBIA	16 July-10 August 1966
SPHERES II, MAI HAI	6 September-29 September 1966
BUOY BOUNCE	13 September-19 September 1966
NOVA Leg I	23 April-15 May 1967
NOVA Leg II	4 June-8 June 1967
NOVA Leg III	22 June-27 August 1967
NOVA Leg V	27 August-6 September 1967
NOVA Leg VI	20 September-30 September 1967

The data were obtained from Nansen bottle casts and S/T/D lowerings (BUOY BOUNCE only). Preceding the tabulated data for each Expedition are: 1) a description of the principal purpose of the cruise and the sponsoring agency, 2) a description of all "non-standard" procedures (see below), 3) a list of scientific personnel participating in the collection of data, and 4) a list of publications utilizing the Expedition data. A chart showing the positions of hydrographic and S/T/D stations also precedes the tabulated data.

These data were collected and processed primarily by the Data Collection and Processing Group (DCPG, MLRG), Scripps Institution of Oceanography, University of California at San Diego.

STANDARD PROCEDURES

Hydrographic Casts

Temperature was measured with paired deep sea reversing thermometers and is tabulated to hundredths of a Celsius degree. Unprotected thermometers were included in most bottles lowered to deeper than 100 meters.

Water samples for chemical and nutrient analyses were obtained from the Nansen bottles.

With the exception of EXJIBIA Expedition, salinity was determined with a conductive salinometer (Univ. of Wash., 1960). Salinity is recorded to three decimal places provided it meets accepted standards. The values are recorded to two decimal places when only one determination per sample was obtained, or where there is doubt about the accuracy of a particular sample, or of all samples on a station.

Dissolved oxygen was determined by the Winkler method as revised by Carpenter (1965).

The observed data have been evaluated using the method described by Klein (1973). This involves consideration of their variation as functions of density or depth and their relations to each other, and comparison with previous or adjacent observations.

TABULATED DATA

Nansen bottle data are listed with observed values on the left side of the page and with interpolated and calculated values at standard depths on the right side of the page. The values listed at standard depths are computer interpolations according to a modified Rattray (1962) technique.

The time given for bottle casts is that of the messenger release in Greenwich Mean Time. When more than one cast was lowered on a station the times for the first and last casts are given. The observed depths of multiple casts are footnoted except for the cast which includes the shallowest Nansen bottle.

The bottom depth, listed in meters, was determined by applying corrections from Matthews (1939) tables to echo soundings.

The weather and dominant waves are coded using the National Oceanographic Data Center (NODC) method.

The column headings from the computer are explained as follows:

Z	Depth	meters
T	Temperature	°C
S	Salinity	‰
O2	Dissolved oxygen	ml/L
PO4	Inorganic phosphate-phosphorus	µg at/L
NO2	Nitrite-nitrogen	µg at/L
DT	δT	cl/ton
SIGT	σ_t	g/L
DD	ΔD ^{1/}	dyn. m
CHLA	Chlorophyll-a	mg/m ³
PHAE	Phaeophytin	mg/m ³

^{1/} Geopotential anomaly, referred to the sea surface.

FOOTNOTES

In addition to footnotes, one special notation is used without a footnote because the meaning is always the same. Values which seem to be in error without apparent reason are indicated by the following notation:

u: uncertain value

EXJIBIA Expedition

The purpose of EXJIBIA Expedition was to study the boundary region between the westward extension of the California Current and the North Equatorial Current in the area between Cape San Lucas and 120°W. EXJIBIA was sponsored by the Office of Naval Research.

Salinity was determined with a Hytech (now Plessey Environmental Systems) inductive salinometer.

Nitrite was determined with a DU spectrophotometer according to the method described by Bendschneider and Robinson (1952).

Original recordings for 364 S/T/D lowerings are on file in SIO data archives.

Scientific personnel participating in the data collection were:

Wooster, Dr. W. S., Chief Scientist
Fiadeiro, M. E.
Gonzales, R. E.
Jones, J. H.
Kalin, G.
Kramer, A.
Kruse, M.
Lam, R. K.
Mantyla, A. W.
Muus, D. A.
Noson, D.
Rosendahl, D. V.
Sievers, H. A.
Simmons, V. P.
Wilson, W. H.
Wirth, D.
Wooster, D.

A paper resulting from EXJIBIA Expedition data is:

Wooster, Warren S. and James H. Jones, 1970. California Undercurrent off northern Baja California. J. Mar. Res., 28: 235-250.

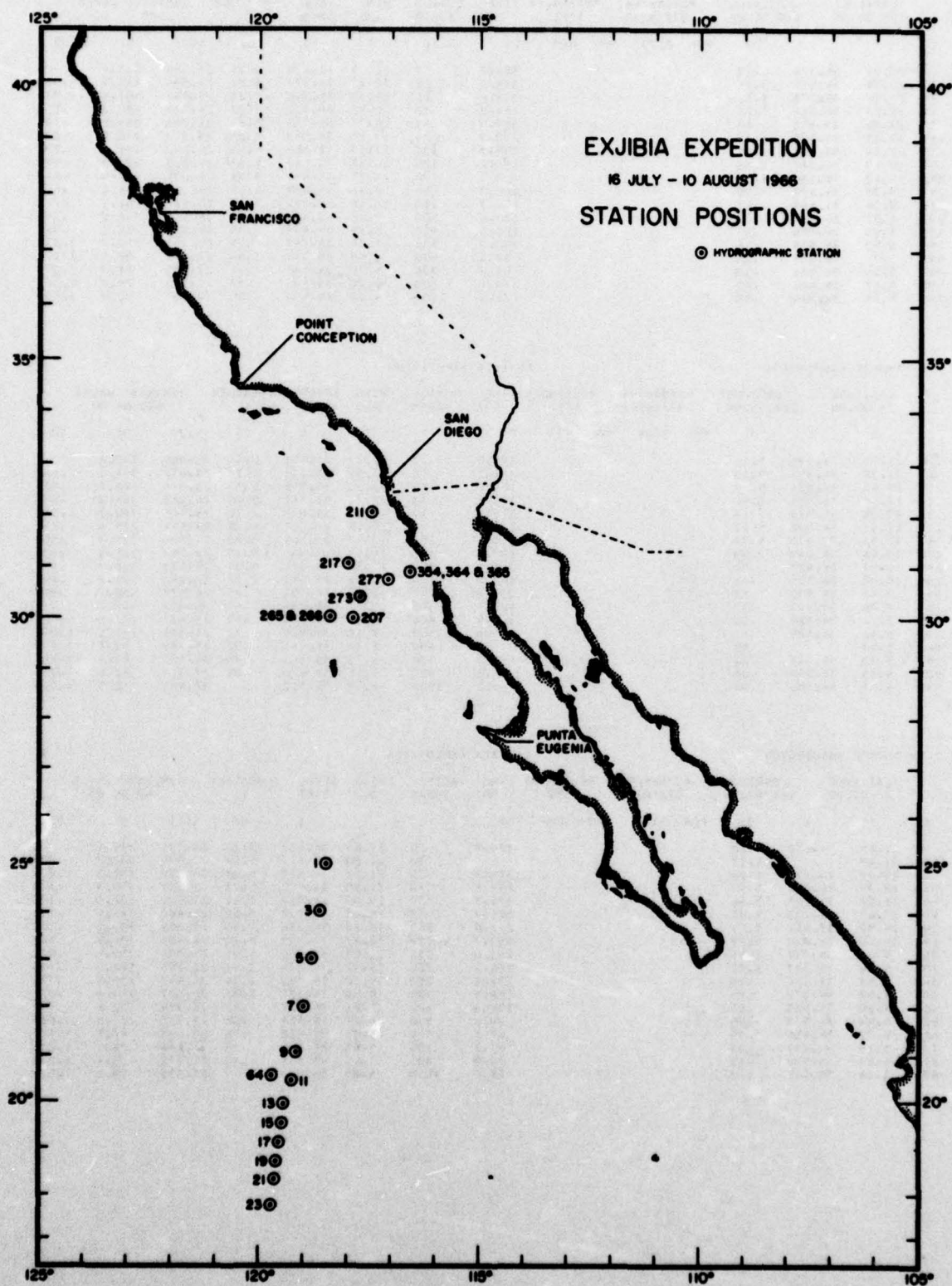


FIGURE 1

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

1

LATITUDE 25 00.0N				LONGITUDE 118 30.0W				MO/DAY/YR 07/16/66				MESSENGER 1021				TIME GMT				BOTTOM 3587M				WIND 100				SPEED 15KT				WEATHER 1				DJMINAVT WAVES 020 06			
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD																								
0	20.99	34.378	5.19					387.8	0	20.99	34.378	5.19	24.044	387.8	0																								
25	20.99	34.375	5.24					388.0	10	20.99	34.377	5.21	24.043	387.9	.039																								
49	20.86	34.375	5.61					384.6	20	20.99	34.376	5.23	24.042	387.9	.078																								
74	18.28	34.056	5.68					344.2	30	20.96	34.375	5.32	24.049	387.3	.116																								
98	17.34	33.816	5.62					339.9	50	20.77	34.364	5.61	24.093	383.0	.194																								
118	15.03	33.800	4.73					290.9	75	18.25	34.048	5.68	24.502	344.0	.285																								
148	12.39	33.800	4.01					239.3	100	17.13	33.809	5.54	24.590	335.7	.371																								
197	10.50	34.047	2.78					188.1	125	14.32	33.792	4.53	25.207	277.0	.448																								
247	10.18	34.108U	1.18						150	12.27	33.807	3.96	25.632	236.6	.513																								
297	9.77	34.397	.59					150.3	200	10.48	34.069	2.67	26.163	186.1	.621																								
346	9.34	34.468	.67					138.3	250	10.16	34.332	1.12	26.424	161.4	.710																								
395	8.51	34.499	.37					123.4	300	9.75	34.403	.59	26.548	149.5	.791																								
495	7.43	34.466	.23					110.6	400	8.44	34.499	.36	26.833	122.5	.934																								
594	6.58	34.458	.56					100.0	500	7.38	34.465	.25	26.965	110.0	1.058																								
692	5.77	34.466	.24					89.5	600	6.53	34.458	.54	27.077	99.3	1.171																								
792	5.04	34.465	.33					81.2	700	5.70	34.466	.25	27.189	88.7	1.274																								
890	4.62	34.464	.40					76.8	800	5.00	34.465	.33	27.273	80.8	1.368																								
990	4.23	34.484	.58					71.3	1000	4.20	34.490	.60	27.382	70.5	1.538																								

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

3

LATITUDE 24 00.0N				LONGITUDE 118 39.0W				MO/DAY/YR 07/16/66				MESSENGER 1711				TIME GMT				BOTTOM 4204M				WIND 360				SPEED 12KT				WEATHER 1				DOMINANT WAVES 010 06 07			
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD																								
0	21.31	34.393	5.14					395.0	0	21.31	34.393	5.14	23.968	395.0	0																								
25	21.28	34.395	5.15					394.1	10	21.30	34.394	5.14	23.972	394.6	.039																								
49	18.46	34.024	5.69					350.8	20	21.29	34.395	5.15	23.976	394.2	.079																								
74	17.60	34.023	5.86					330.8	30	20.72	34.311	5.25	24.065	385.8	.118																								
98	17.24	34.073	5.64					318.9	50	18.40	34.020	5.70	24.443	349.7	.192																								
117	15.41	34.008	5.17					283.6	75	17.58	34.021	5.86	24.644	330.6	.277																								
147	12.43	33.870	4.29					234.9	100	17.08	34.069	5.60	24.800	315.7	.359																								
196	10.04	34.043	2.69					180.8	125	14.56	33.960	4.95	25.284	269.6	.433																								
245	10.63	34.483	.88					158.0	150	12.20	33.870	4.20	25.694	230.7	.496																								
294	10.09	34.555	.46					143.8	200	10.05	34.081	2.52	26.246	178.2	.601																								
345	9.42	34.530	.53					134.9	250	10.60	34.501	.84	26.477	156.2	.687																								
394	8.46	34.487	.41					123.6	300	10.02	34.555	.47	26.621	142.7	.764																								
494	7.22	34.424	.30					110.9	400	8.37	34.482	.40	26.832	122.6	.904																								
591	6.42	34.439	.61					99.4	500	7.16	34.424	.32	26.963	110.1	1.028																								
688	5.80		.44						600	6.36	34.441	.61	27.086	98.5	1.140																								
787	5.23	34.476	.21					82.5	700	5.73	34.464	.40	27.185	89.2	1.243																								
885	4.73	34.489	.35					76.1	800	5.16	34.478	.22	27.265	81.6	1.338																								
985	4.39	34.506	.44					71.2	1000	4.35	34.510		27.381	70.5	1.509																								

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

7

LATITUDE 22 00.0N		LONGITUDE 119 02.0W		MO/DAY/YR 07/17/66		MESSENGER 0630		TIME GMT	BOTTOM 4275M	WIND 110	SPEED 11KT	WEATHER 1	DOMINANT WAVES 190 05 07			
Z	T	S	OZ	PD4	SI03	NO2	NO3	DT	Z	T	S	OZ	SI03	DT	DD	
0	22.40	34.674	5.04					403.6	0	22.40	34.674	5.04	23.878	403.6	0	
24	22.38	34.670	5.07					403.3	10	22.39	34.673	5.05	23.879	403.5	.040	
48	19.74	34.284	5.51					363.0	20	22.38	34.671	5.06	23.880	403.4	.081	
71	18.07	33.985	5.68					344.5	30	21.80	34.584	5.17	23.977	394.1	.121	
95	16.96	33.890	5.62					326.0	50	19.57	34.253	5.53	24.325	360.9	.197	
115	16.25	33.975	5.25					304.1	75	17.85	33.955	5.67	24.528	341.6	.285	
142	13.14	33.908	4.10					245.4	100	16.84	33.912	5.56	24.738	321.6	.368	
190	10.83	34.070	2.80					191.9	125	15.17	33.946	4.85	25.143	283.1	.445	
238	10.26	34.329	1.53					163.3	150	12.55	33.922	3.85	25.666	233.3	.510	
286	9.45	34.375	1.17					146.9	200	10.65	34.131	2.50	26.181	184.4	.617	
333	9.02	34.418	.84					137.1	250	10.05	34.350	1.40	26.456	158.3	.705	
381	8.43	34.438	.59					126.8	300	9.31	34.390	1.07	26.610	143.6	.783	
477	7.34	34.422	.50					112.7	400	8.20	34.436	.57	26.821	123.6	.923	
572	6.46	34.453	.45					98.9	500	7.11	34.429	.50	26.975	109.1	1.047	
669	5.82	34.460	.19					90.5	600	6.26	34.456	.37	27.111	96.1	1.158	
767	5.26	34.474	.29					83.0	700	5.63	34.464	.21	27.197	88.0	1.259	
865	4.84	34.492	.33					77.0	800	5.11	34.480	.33	27.272	80.9	1.352	
963	4.46	34.509	.53					71.7	1000	4.33	34.520		27.391	69.6	1.522	

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

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LATITUDE 21 00.0N		LONGITUDE 119 12.0W		MO/DAY/YR 07/17/66		MESSENGER 1301		TIME GMT	BOTTOM 3248M	WIND 020	SPEED 13KT	WEATHER 1	DOMINANT WAVES 150 05 06			
Z	T	S	OZ	PD4	SI03	NO2	NO3	DT	Z	T	S	OZ	SI03	DT	DD	
1	22.76	34.624	4.95					416.9	0	22.76	34.624	4.95	23.738	416.9	0	
23	22.76	34.623	4.95					417.0	10	22.76	34.624	4.95	23.738	417.0	.042	
47	21.45	34.514	5.25					389.9	20	22.76	34.624	4.95	23.737	417.0	.083	
68	20.36	34.462	5.31					365.6	30	22.44	34.594	5.03	23.805	410.6	.125	
90	19.02	34.334	5.39					341.7	50	21.30	34.508	5.26	24.058	386.4	.205	
108	18.42	34.354	5.38					325.9	75	19.91	34.415	5.34	24.360	357.6	.298	
133	16.83	34.258	4.83					296.2	100	18.69	34.344	5.38	24.619	333.0	.386	
178	12.63	34.019	3.81					227.6	125	17.42	34.299	5.04	24.896	306.5	.466	
222	10.65	34.070	3.17					188.9	150	15.22	34.142	4.43	25.283	269.7	.539	
263	9.70	34.219	1.90					162.4	200	11.45	34.025	3.51	25.955	205.8	.661	
308	8.94	34.299	1.30					144.7	250	9.94	34.172	2.30	26.335	169.7	.757	
350	8.33	34.332	.88					133.2	300	9.06	34.290	1.37	26.573	147.2	.839	
435	7.79	34.391	.42					121.1	400	7.97	34.369	.56	26.803	125.3	.982	
522	6.96	34.434	.20					106.7	500	7.17	34.425	.23	26.962	110.2	1.107	
610	6.32	34.456	.20					96.9	600	6.39	34.454	.20	27.093	97.9	1.219	
700	5.72	34.476	.21					88.2	700	5.72	34.476	.21	27.195	88.2	1.321	
792	5.18	34.489	.25					81.0	800	5.14	34.490	.26	27.277	80.4	1.415	
886	4.72	34.498	.51					75.3	1000	4.35	34.510		27.381	70.5	1.585	

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

11

LATITUDE 20 24.0N		LONGITUDE 119 18.0W		MO/DAY/YR 07/17/66		MESSENGER 1653		TIME GMT	BOTTOM 3774M	WIND 020	SPEED 18KT	WEATHER 1	DOMINANT WAVES 360 08 06		
Z	T	S	OZ	PD4	SI03	NO2	NO3	DT	Z	T	S	OZ	SI03	DT	DD
2	23.23	34.614	5.01			.01		430.5	0	23.23	34.614	5.01	23.596	430.5	0
26	23.22	34.616	5.08			.01		430.1	10	23.23	34.615	5.04	23.597	430.4	.043
50	22.60	34.589	5.07			.00		415.1	20	23.22	34.616	5.07	23.599	430.2	.086
74	20.06	34.497	5.39			.00		355.5	30	23.21	34.616	5.08	23.603	429.8	.129
97	18.57	34.361	5.19			.06		328.9	50	22.60	34.589	5.07	23.757	415.1	.214
116	17.76	34.287	5.02			.22		315.3	75	19.98	34.491	5.39	24.399	353.9	.311
143	15.92	34.226	4.45			.04		278.6	100	18.44	34.348	5.17	24.683	326.9	.397
190	12.10	34.261	1.90			.00		200.1	125	17.21	34.261	4.89	24.918	304.5	.476
238	11.04	34.436	1.10			.00		168.5	150	15.29	34.215	4.08	25.322	266.0	.549
285	10.09	34.436	.95			.00		152.6	200	11.76	34.303	1.63	26.113	190.8	.665
332	9.84	34.565	.25			.00		139.0	250	10.76	34.438	1.06	26.400	163.6	.756
380	9.11	34.529	.18			.00		130.2	300	10.00	34.480	.72	26.566	147.8	.837
476	7.76	34.480	.27			.00		114.1	400	8.81	34.515	.19	26.790	126.6	.982
571	6.82	34.473	.14			.00		102.0	500	7.50	34.477	.24	26.957	110.7	1.108
667	6.03	34.466	.31			.00		92.6	600	6.56	34.470	.20	27.082	99.0	1.222
764	5.40	34.482	.24			.00		84.0	700	5.80	34.470	.29	27.181	89.5	1.325
863	4.94	34.497	.42			.00		77.7	800	5.22	34.487	.32	27.265	81.5	1.420
962	4.58	34.519	.28			.00		72.2	1000	4.50	34.530		27.381	70.6	1.592

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

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LATITUDE 19 53.0N		LONGITUDE 119 28.0W		MO/DAY/YR 07/17/66		MESSENGER 2055		TIME GRT	BOTTOM 4054M	WIND 020	SPEED 15KT	WEATHER 1	DOMINANT WAVES 360 08 06		
Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DO
0	23.37	34.684	4.99			.00		429.4	0	23.37	34.684	4.99	23.608	429.4	0
23	23.24	34.681	5.00			.00		426.0	10	23.31	34.683	4.99	23.623	427.9	.043
46	21.96	34.528	5.24			.00		402.3	20	23.26	34.682	5.00	23.639	426.4	.086
68	20.35	34.458	5.35			.00		365.6	30	22.93	34.639	5.07	23.699	420.6	.128
91	18.92	34.319	5.35			.00		340.4	50	21.67	34.514	5.27	23.961	395.7	.210
110	17.96	34.244	5.18			.03		323.1	75	19.89	34.417	5.35	24.367	357.0	.305
137	15.58	34.173	3.93			.02		275.2	100	18.49	34.281	5.27	24.620	332.8	.392
183	12.52	34.424	1.33			.00		195.8	125	16.68	34.189	4.57	24.985	298.1	.471
229	11.46	34.556	.77			.00		166.9	150	14.55	34.224	3.12	25.490	250.0	.541
275	11.44	34.682	.14			.00		157.3	200	11.95	34.483	1.01	26.216	181.1	.651
321	10.50	34.601	.54			.00		147.1	250	11.45	34.630	.42	26.424	161.4	.739
367	9.69	34.549	.28			.00		137.8	300	10.98	34.649	.33	26.525	151.7	.821
458	8.44	34.508	.20			.00		121.7	400	9.21	34.529	.25	26.736	131.7	.970
550	7.25	34.478	.36			.00		107.3	500	7.87	34.492	.28	26.914	114.8	1.102
641	6.38	34.470	.18			.00		96.6	600	6.74	34.472	.27	27.060	101.0	1.218
734	5.73	34.472	.18			.00		88.6	700	5.95	34.470	.18	27.162	91.3	1.324
828	5.21	34.486	.24			.00		81.6	800	5.35	34.481	.22	27.244	83.6	1.421
926	4.73	34.508	.28					74.7	1000	4.46	34.520		27.377	70.9	1.595

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

15

LATITUDE 19 29.0N		LONGITUDE 119 30.0W		MO/DAY/YR 07/18/66		MESSENGER 0049		TIME GMT	BOTTOM 4070M	WIND 020	SPEED 19KT	WEATHER 1	DOMINANT WAVES 020 08 06			
Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DO	
1	24.49	34.518	4.83			.01		472.9	0	24.49	34.518	4.83	23.152	472.9	0	
23	23.86	34.689	4.92			.01		442.7	10	24.49	34.518	4.87	23.152	472.9	.047	
45	21.34	34.510	5.33			.02		387.3	20	24.08	34.664	4.91	23.383	450.8	.094	
68	19.90	34.415	5.35			.00		357.4	30	23.10	34.565	5.05	23.596	430.5	.138	
89	19.04	34.365	5.37			.02		339.9	50	20.94	34.489	5.33	24.141	378.5	.219	
108	18.22	34.319	5.30			.02		323.7	75	19.59	34.397	5.36	24.428	351.1	.311	
135	15.51	34.065	4.13			.02		281.6	100	18.62	34.347	5.33	24.637	331.2	.397	
180	12.37	34.195	2.40			.02		209.9	125	16.58	34.152	4.63	24.981	298.5	.476	
225	11.96	34.619	.37			.02		171.2	150	14.22	34.051	3.55	25.428	255.9	.547	
271	10.98	34.624	.22			.01		153.6	200	12.19	34.429	1.40	26.129	189.3	.660	
315	10.53	34.649	.07			.00		144.1	250	11.43	34.647	.29	26.441	159.7	.750	
359	9.74	34.599	.06			.00		134.9	300	10.68	34.645	.11	26.576	146.9	.830	
450	8.43	34.533	.28			.00		119.7	400	9.12	34.565	.17	26.779	127.7	.975	
539	7.23	34.497	.07			.00		105.6	500	7.72	34.509	.16	26.950	111.4	1.102	
629	6.54	34.495	.31			.01		96.8	600	6.73	34.494	.22	27.079	99.2	1.217	
720	5.96	34.497				.00		89.4	700	6.08	34.497	.33	27.166	91.0	1.321	
815	5.34	34.497	.35			.01		82.2	800	5.43	34.497	.35	27.247	83.3	1.418	
912	4.87	34.505	.41					76.4	1000	4.60	34.520		27.362	72.4	1.594	

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

17

LATITUDE 19 05.0N		LONGITUDE 119 34.0W		MO/DAY/YR 07/18/66		MESSENGER TIME 0500		BOTTOM 4006M		WIND 200		SPEED 05KT		WEATHER 5		DOMINANT WAVES 200 08 07	
Z	T	S	O2	PO4	SIO3	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DO		
2	25.35	34.402	4.78			.00		506.1	0	25.35	34.402	4.78	22.805	506.1		0	
25	25.33	34.408	4.80			.00		505.1	10	25.34	34.404	4.79	22.808	505.7		.051	
53	22.56	34.555	5.10			.00		416.5	20	25.33	34.407	4.80	22.813	505.3		.101	
82	20.16	34.499	4.65			.33		357.9	30	24.93	34.380	4.87	22.916	495.4		.151	
105	17.52	34.302	4.36A			.11		308.7	50	22.88	34.523	5.08	23.626	427.6		.244	
123	15.72	34.104	3.61A			.12		283.2	75	20.76	34.539	4.79	24.229	370.1		.344	
152	13.64	34.222	2.16			.01		232.0	100	18.11	34.351	4.45	24.769	318.7		.431	
207	12.04	34.510	.74			.01		180.7	125	15.55	34.103	3.51	25.179	279.6		.507	
253	11.10	34.605	.53			.01		157.0	150	13.75	34.205	2.26	25.644	235.4		.572	
308	10.52	34.630	.16			.01		145.3	200	12.14	34.479	.84	26.176	184.8		.679	
394	9.74	34.580	.14			.00		136.3	250	11.15	34.603	.53	26.458	158.1		.768	
409	8.82	34.527	.26			.00		126.0	300	10.60	34.633	.21	26.581	146.4		.847	
512	7.51	34.480	.14			.00		110.6	400	8.96	34.535	.24	26.780	127.6		.991	
617	6.56	34.483	.14			.01		97.9	500	7.64	34.483	.16	26.942	112.2		1.119	
722	5.82	34.497	.13			.01		87.8	600	6.69	34.481	.14	27.073	99.8		1.234	
830	5.20	34.511	.33			.01		79.6	700	5.96	34.494	.13	27.179	89.7		1.338	
937	4.67	34.519	.38			.01		73.2	800	5.36	34.508	.27	27.264	81.6		1.433	
1047	4.23	34.548	.57			.01		66.5	1000	4.40	34.533	.47	27.394	69.4		1.604	

A) OXYGEN SAMPLES AT 105 AND 123 METERS APPEAR TO HAVE BEEN REVERSED. THEY ARE ASSUMED TO BE IN THE CORRECT ORDER.

RV THOMAS WASHINGTON				EXJIBIA EXPEDITION												19
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
18 39.0N		119 37.0W		07/18/66		0851		GMT		020	13KT	5	200 08 09			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD	
0	25.86	34.396	4.74			.00		521.5	0	25.86	34.396	4.74	22.643	521.5	0	
24	25.88	34.399	4.70			.00		521.9	10	25.87	34.397	4.72	22.642	521.7	.052	
52	22.84	34.500	5.20			.00		428.1	20	25.88	34.399	4.71	22.640	521.8	.104	
81	21.02	34.459	5.17			.01		382.7	30	25.31	34.417	4.80	22.827	504.0	.156	
105	18.56	34.255	4.41			.33		336.4	50	23.09	34.491	5.16	23.542	435.6	.250	
124	16.42	34.203	3.09			.18		291.2	75	21.39	34.487	5.18	24.016	390.4	.354	
158	13.47	34.187	2.44			.02		231.2	100	19.12	34.296	4.64	24.473	346.9	.447	
210	11.80	34.589	.59			.01		170.5	125	16.31	34.200	3.06	25.080	289.1	.527	
258	11.28	34.670	.51			.01		155.4	150	14.05	34.176	2.51	25.560	243.4	.595	
315	10.28	34.603	.19			.00		143.3	200	11.94	34.509	.91	26.238	179.0	.703	
363	9.52	34.556	.46			.00		134.6	250	11.34	34.672	.52	26.476	156.4	.789	
420	8.74	34.518	.58			.00		125.4	300	10.56	34.629	.25	26.584	146.1	.868	
525	7.50	34.494	.36			.00		109.5	400	9.00	34.529	.56	26.769	128.5	1.013	
631	6.40	34.481	.20			.00		96.0	500	7.78	34.497	.44	26.932	113.1	1.142	
736	5.68	34.492	.25			.01		86.5	600	6.69	34.483	.23	27.074	99.6	1.257	
843	5.10	34.498	.41			.01		79.4	700	5.90	34.488	.23	27.182	89.4	1.360	
951	4.64	34.515	.64			.01		73.2	800	5.32	34.495	.34	27.260	82.1	1.456	
1060	4.20	34.531	.54			.01		67.4	1000	4.44	34.522	.60	27.381	70.5	1.628	

RV THOMAS WASHINGTON				EXJIBIA EXPEDITION												21
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
18 15.0N		119 40.0W		07/18/66		1257		GMT	4287M	150	19KT	0	140 07 07			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT		Z	T	S	O2	SIGT	DT	DD
0	25.84	34.406	4.75			.05		520.2		0	25.84	34.406	4.75	22.657	520.2	0
25	24.70	34.383	4.90			.01		488.6		10	25.84	34.426	4.82	22.672	518.8	.052
55	22.25	34.482	4.94			.05		413.4		20	25.16	34.398	4.88	22.860	500.8	.103
85	19.30	34.502	4.98			.08		336.3		30	24.32	34.395	4.91	23.111	476.0	.152
110	16.22	34.269	2.94			.05		282.0		50	22.68	34.460	4.94	23.636	426.7	.243
130	13.54	34.185	2.37			.03		232.7		75	20.36	34.519	4.97	24.320	361.4	.342
165	12.12	34.330	1.50			.00		195.4		100	17.50	34.366	3.78	24.927	303.6	.426
221	11.52	34.636A	.29			.01		162.1		125	14.16	34.193	2.47	25.550	244.3	.495
271	10.70	34.633	.18			.01		148.1		150	12.42	34.250	1.86	25.945	206.8	.552
331	9.68	34.586	.14			.00		134.9		200	11.64	34.537	.66	26.316	171.6	.649
382	8.94	34.543	.15			.01		126.6		250	11.06	34.652	.23	26.512	152.9	.733
441	8.06	34.508	.17			.01		116.2		300	10.20	34.614	.15	26.635	141.3	.809
552	7.12	34.519	.13			.01		102.5		400	8.66	34.530	.16	26.824	123.4	.949
661	6.22	34.506	.34			.01		91.9		500	7.50	34.510	.14	26.983	108.3	1.073
770	5.51	34.514	.24			.02		82.9		600	6.71	34.513	.23	27.096	97.6	1.184
880	4.94	34.522	.28			.02		75.9		700	5.95	34.508	.31	27.192	88.5	1.286
990	4.53	34.533	.44			.03		70.7		800	5.34	34.516	.25	27.273	80.8	1.381
1101	4.11	34.545	.62			.01		65.5		1000	4.49	34.534	.46	27.385	70.2	1.551

RV THOMAS WASHINGTON				EXJIBIA EXPEDITION												23
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
17 40.0N		119 46.0W		07/18/66		1745		GMT	3966M	180	14KT	1	160 08 08			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT		Z	T	S	O2	SIGT	DT	DD
0	25.92	34.349	4.70			.02		526.7		0	25.92	34.349	4.70	22.589	526.7	0
24	25.38	34.408	4.87			.00		506.5		10	25.92	34.349	4.78	22.589	526.7	.053
47	24.33	34.411	4.93			.01		476.0		20	25.57	34.390	4.85	22.728	513.4	.105
71	22.02	34.493	4.91			.06		406.5		30	25.17	34.412	4.89	22.867	500.1	.156
94	18.60	34.425	5.03			.39		325.0		50	24.11	34.425	4.93	23.195	468.8	.253
118	15.62	34.208	3.35			.03		273.5		75	21.45	34.488	4.93	24.003	391.7	.361
142	13.68	34.220	2.21			.01		232.9		100	17.78	34.366	4.67	24.860	310.0	.449
166	12.54	34.379	1.28			.00		199.5		125	14.96	34.193	2.98	25.378	260.7	.522
190	11.86	34.523	.73			.00		176.5		150	13.23	34.266	1.87	25.798	220.8	.583
214	11.47	34.614	.33			.00		162.8		200	11.68	34.570	.54	26.333	169.9	.683
238	11.02	34.628	.20			.01		154.0		250	10.84	34.634	.17	26.538	150.5	.765
262	10.68	34.636	.15			.00		147.6		300	10.19	34.619	.15	26.641	140.7	.841
286	10.32	34.624	.16			.02		142.4		400	8.56	34.544	.17	26.851	120.8	.979
310	10.08	34.612	.14			.00		139.4		500	7.37	34.518	.14	27.008	105.9	1.100
334	9.59	34.580	.15			.00		133.9		600	6.51	34.509	.14	27.121	95.2	1.209
358	9.17	34.564	.16			.01		128.5		700	5.79	34.512	.16	27.216	86.2	1.309
381		34.547	.17			.02										
478		34.543	.15			.01										
575	6.72	34.510	.13			.01		97.9								
770	5.42	34.517	.18			.00		81.6								

A) AN ERROR OF -.01 OHMS HAS BEEN ASSUMED.

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

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LATITUDE 20 32.0N				LONGITUDE 119 44.0W				MO/DAY/YR 07/20/66				MESSENGER TIME 1929				BOTTOM 3874M	WIND 330	SPEED 05KT	WEATHER 1	DOMINANT WAVES 330 02 05			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI03	DT	DD								
2	23.75	34.557	4.92					449.1	0	23.75	34.557	4.92	23.401	449.1	0								
25	23.26	34.555	4.97					435.6	10	23.58	34.550	4.93	23.445	444.9	.045								
49	22.73	34.612	5.07					417.0	20	23.37	34.551	4.96	23.508	438.9	.089								
72	20.80	34.522	5.27					372.5	30	23.21	34.573	4.98	23.569	431.1	.133								
96	19.43	34.440	5.27					344.0	50	22.65	34.610	5.08	23.757	415.1	.218								
120	18.30	34.357	5.11					322.8	75	20.60	34.512	5.27	24.249	368.2	.316								
149	16.62	34.323	4.67					286.8	100	19.24	34.425	5.26	24.540	340.5	.406								
195	12.48	34.225	2.01					209.7	125	18.05	34.351	5.08	24.783	317.4	.489								
244	10.96	34.377	1.32					171.4	150	16.53	34.319	4.61	25.122	285.1	.565								
294	10.62	34.563	.46					151.9	200	12.23	34.236	1.89	25.971	204.3	.690								
342	9.06	34.398	.77					139.2	250	10.92	34.409	1.19	26.349	168.4	.786								
388	7.92	34.314	.80					128.7	300	10.45	34.549	.48	26.542	150.1	.869								
486	7.14	34.391	.32					112.3	400	7.76	34.315	.75	26.792	126.4	1.013								
579	6.62	34.474	.18					99.3	500	7.06	34.406	.28	26.964	110.1	1.139								
673	5.96	34.482	.20					90.6	600	6.47	34.479	.18	27.101	97.1	1.251								
772	5.36	34.487	.26					83.2	700	5.79	34.483	.22	27.193	88.4	1.353								
869	4.89	34.507	.28					76.5	800	5.21	34.492	.26	27.270	81.1	1.447								
972	4.49	34.522	.38					71.1	1000	4.40	34.530		27.392	69.5	1.617								

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

207

LATITUDE 30 01.0N				LONGITUDE 117 54.0W				MO/DAY/YR 07/26/66				MESSENGER TIME 2006				BOTTOM 3304M	WIND 280	SPEED 04KT	WEATHER 1	DOMINANT WAVES 280 03 07			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI03	DT	DD								
0	18.26	33.428	5.50					389.4	0	18.26	33.428	5.50	24.026	389.4	0								
25	17.54	33.430	5.58					372.6	10	18.09	33.436	5.53	24.074	384.9	.039								
49	15.94	33.399	5.94					339.4	20	17.76	33.434	5.56	24.152	377.4	.077								
74	14.80	33.357	6.00					318.6	30	17.22	33.425	5.66	24.274	365.9	.114								
99	14.30	33.408	5.90					304.7	50	15.88	33.397	5.94	24.562	338.4	.185								
124	12.63	33.415	5.27					272.0	75	14.79	33.359	6.00	24.775	318.1	.267								
153	10.74	33.614	4.48					224.0	100	14.24	33.408	5.88	24.926	303.7	.346								
203	9.58	33.889	3.64					184.9	125	12.56	33.421	5.24	25.277	270.3	.418								
252	8.31	33.999	3.34					157.7	150	10.91	33.589	4.56	25.713	228.8	.481								
307	7.59	34.057	2.24					143.2	200	9.61	33.878	3.67	26.161	186.3	.587								
356	7.10	34.129	.94					131.3	250	8.36	33.997	3.35	26.453	158.5	.675								
406	6.74	34.190	.37					122.1	300	7.66	34.052	2.41	26.601	144.6	.753								
510	5.99	34.276	.38					106.3	400	6.78	34.184	.41	26.827	123.1	.893								
606	5.52	34.339	.25					96.1	500	6.06	34.269	.38	26.990	107.6	1.014								
703	5.04	34.397	.27					86.3	600	5.55	34.336	.26	27.106	96.7	1.123								
806	4.62	34.429	.34					79.4	700	5.05	34.396	.27	27.212	86.6	1.223								
905	4.28	34.457	.48					73.8	800	4.64	34.428	.33	27.284	79.8	1.314								
1010	3.95	34.480	.56					68.8	1000	3.98	34.478	.56	27.395	69.2	1.481								

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

211

LATITUDE 32 06.0N				LONGITUDE 117 31.0W				MO/DAY/YR 08/02/66				MESSENGER TIME 0210				BOTTOM 1429M	WIND 050	SPEED 08KT	WEATHER 1	DOMINANT WAVES 330 03 06			
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SI03	DT	DD								
0	20.24	33.652						421.3	0	20.24	33.652		23.693	421.3	0								
25	17.40	33.521						362.8	10	19.24	33.612		23.922	399.4	.041								
49	13.64	33.369						294.6	20	18.06	33.554		24.172	375.5	.080								
74	12.04	33.439						259.5	30	16.57	33.474		24.465	347.7	.116								
99	10.74	33.643						221.9	50	13.55	33.370		25.040	292.8	.180								
148	9.72	33.881						187.7	75	11.98	33.447		25.407	257.9	.250								
198	8.90	34.037						163.5	100	10.71	33.650		25.797	220.9	.310								
298	7.40	34.120						136.0	125	10.06	33.790		26.018	199.9	.363								
398	6.56	34.178						120.7	150	9.68	33.889		26.158	186.6	.412								
498	6.42	34.325						107.9	200	8.87	34.040		26.409	162.8	.501								
598	5.84	34.348						99.2	250	8.07	34.100		26.578	146.7	.581								
									300	7.38	34.121		26.695	135.6	.653								
									400	6.56	34.181		26.855	120.4	.787								
									500	6.41	34.326		26.988	107.8	.907								
									600	5.82	34.350		27.083	98.8	1.018								

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

217

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER	DOMINANT WAVES	
31 05.0N		118 00.0W		08/02/66		1200		GMT	1669M		320	09KT	1	320 03 07	
Z	T	S	O2	PO4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.63	33.594						386.1	0	18.63	33.594		24.061	386.1	0
25	16.84	33.523						350.0	10	17.84	33.561		24.231	370.0	.038
50	15.68	33.474						328.4	20	17.15	33.535		24.376	356.1	.074
75	12.25	33.415						265.1	30	16.67	33.517		24.474	346.8	.109
100	11.26	33.546						237.9	50	15.68	33.474		24.667	328.4	.177
150	9.01	33.934						172.8	75	12.25	33.415		25.332	265.1	.252
200	8.52	34.030						158.4	100	11.26	33.546		25.618	237.9	.315
300	7.18	34.117						133.2	125	10.05	33.744		25.984	203.1	.371
400	6.76	34.259						117.2	150	9.01	33.934		26.303	172.8	.418
500	6.05	34.313						104.3	200	8.52	34.030		26.455	158.4	.503
601	5.57	34.355						95.5	250	7.82	34.077		26.597	144.9	.581
									300	7.18	34.117		26.720	133.2	.652
									400	6.76	34.259		26.889	117.2	.783
									500	6.05	34.313		27.025	104.3	.900
									600	5.57	34.355		27.118	95.5	1.007

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

265

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER	DOMINANT WAVES	
30 01.5N		118 22.0W		08/04/66		1215		GMT	3395M		290	10KT	1	300 05 07	
Z	T	S	O2	PO4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.34	33.409						392.7	0	18.34	33.409		23.992	392.7	0
24	17.97	33.393A						385.2	10	18.17	33.385		24.015	390.5	.039
48	17.72	33.525						369.8	20	18.02	33.386		24.052	387.0	.078
72	14.84	33.352						319.8	30	17.91	33.399		24.090	383.4	.117
95	13.82	33.389						296.6	50	17.49	33.510		24.274	365.8	.192
143	10.22	33.638						213.7	75	14.67	33.352		24.793	316.4	.278
191	9.18	33.889						178.7	100	13.43	33.405		25.092	287.9	.354
287	8.04	34.058						149.4	125	11.54	33.519		25.546	244.7	.421
384	6.87	34.136						127.8	150	9.98	33.681		25.946	206.7	.478
483	6.03	34.235						109.9	200	9.05	33.917		26.283	174.7	.575
583	5.50	34.297						99.0	250	8.41	34.026		26.469	157.0	.660
									300	7.87	34.071		26.584	146.2	.738
									400	6.71	34.153		26.812	124.5	.879
									500	5.92	34.249		26.991	107.5	1.001

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

266

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER	DOMINANT WAVES	
30 01.5N		118 22.0W		08/04/66		2248		GMT			310	12KT	1	300 08 07	
Z	T	S	O2	PO4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	18.48	33.410	5.62			.01		395.9	0	18.48	33.410	5.62	23.958	395.9	0
20	18.00	33.423	5.48			.00		383.7	10	18.24	33.420	5.55	24.025	389.6	.039
30	18.20	33.562	5.63			.00		378.3	20	18.00	33.423	5.48	24.086	383.7	.078
39	18.18	33.606	5.49			.00		374.6	30	18.20	33.562	5.63	24.143	378.3	.116
49	16.91	33.481	5.94			.00		354.7	50	16.85	33.497	5.94	24.416	352.3	.189
59	16.42	33.630	5.93			.00		333.0	75	15.20	33.468	5.94	24.769	318.7	.274
69	15.44	33.503	6.06			.00		321.2	100	13.59	33.401	5.74	25.056	291.3	.351
79	15.06	33.451	5.85			.00		317.0	125	12.04	33.431	5.51	25.383	260.2	.420
89	14.32	33.407	5.84			.00		305.2	150	10.78	33.561	4.90	25.714	228.7	.482
99	13.66	33.401	5.75			.01		292.6	200	9.16	33.929	4.21	26.275	175.5	.585
123	12.15	33.424	5.53			.12		262.6	250	8.36	34.017	3.26	26.469	157.1	.670
148	10.89	33.544	5.01			.03		231.7	300	7.74	34.080		26.611	143.6	.748
173	9.72	33.762	3.82			.00		196.5							
197	9.22	33.914	4.22			.00		177.5							
223	8.74	34.004	4.14			.02		163.6							
247	8.40	34.013	3.38			.00		157.9							
272	8.08	34.047	2.51			.00		150.8							
297	7.76	34.073	2.15			.00		144.4							

A) AN ERROR OF .01 OHMS HAS BEEN ASSUMED.

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

273

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER		DOMINANT WAVES	
30 27.0N		117 44.0W		08/06/66		2330		GMT	2819M		260	05KT	1		080 08 07	
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	19.10	33.474	5.46					406.1	0	19.10	33.474	5.46	23.852	406.1	0	
25	17.44	33.377	5.64					374.2	10	18.43	33.418	5.55	23.976	394.3	.040	
49	15.86	33.420	5.70					336.2	20	17.77	33.385	5.61	24.113	381.2	.079	
74	13.36	33.267	6.05					296.7	30	17.14	33.390	5.65	24.266	366.6	.116	
98	12.06	33.382	5.35					264.1	50	15.76	33.413	5.72	24.602	334.5	.187	
148	9.84	33.738	3.87					200.2	75	13.29	33.270	6.03	25.015	295.2	.266	
197	8.88	33.971	3.85					168.1	100	11.95	33.396	5.28	25.373	261.2	.336	
248	8.15	34.026	2.91					153.4	125	10.74	33.571	4.46	25.730	227.3	.398	
295	7.46	34.077	2.07					140.0	150	9.79	33.751	3.87	26.033	198.4	.451	
346	7.00	34.127	1.39					130.1	200	8.83	33.977	3.81	26.364	167.0	.545	
394	6.63	34.182	.90					121.3	250	8.12	34.028	2.87	26.514	152.7	.626	
445	6.25	34.248	.50					111.6	300	7.41	34.082	1.99	26.660	138.9	.702	
495	6.00	34.289	.35					105.5	400	6.58	34.190	.84	26.859	120.0	.836	
									500	5.98	34.290		27.016	105.2	.955	

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

277

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER		DOMINANT WAVES	
30 46.0N		117 04.0W		08/07/66		0601		GMT	2098M		310	03KT	1		02 08	
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
1	19.72	33.52	5.53			.00		417.9	0	19.72	33.52	5.53	23.728	417.9	0	
26	17.08	33.41	5.72			.00		363.6	10	18.76	33.48	5.58	23.941	397.6	.041	
51	14.48	33.30	6.08			.00		316.2	20	17.71	33.44	5.66	24.167	376.0	.080	
76	12.06	33.31	6.04			.01		269.4	30	16.66	33.39	5.79	24.379	355.8	.116	
101	11.38	33.44	4.91			.08		247.8	50	14.58	33.30	6.07	24.775	318.1	.184	
150	10.06	33.72	4.22			.01		205.0	75	12.14	33.31	6.04	25.270	271.0	.258	
200	9.16	34.00	2.82			.01		170.2	100	11.39	33.43	4.96	25.507	248.4	.323	
250	8.56	34.12	2.04			.00		152.3	125	10.71	33.58	4.49	25.739	226.4	.383	
300	7.72	34.11	1.80			.01		141.1	150	10.06	33.72	4.22	25.964	205.0	.438	
350	7.26	34.16	1.23			.01		131.1	200	9.16	34.00	2.82	26.331	170.2	.533	
401	6.84	34.21	.79			.00		121.9	250	8.56	34.12	2.04	26.519	152.3	.616	
450	6.55	34.24	.57			.00		115.9	300	7.72	34.11	1.80	26.637	141.1	.692	
499	6.23	34.28	.45			.01		108.9	400	6.85	34.21	.80	26.838	122.0	.829	
									500	6.23	34.28		26.976	108.9	.951	

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

354

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER		DOMINANT WAVES	
30 57.0N		116 38.5W		08/10/66		0550		GMT	685M		310	04KT	1		300 03 07	
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	20.52	33.592	5.29			.01		432.7	0	20.52	33.592	5.29	23.573	432.7	0	
23	17.89	33.488	5.61			.01		376.4	10	19.53	33.564	5.40	23.811	410.0	.042	
44	14.42	33.335	6.11			.00		312.5	20	18.30	33.509	5.55	24.077	384.6	.082	
66	12.36	33.326	5.51			.13		273.6	30	16.71	33.425	5.82	24.395	354.3	.119	
88	11.02	33.484	4.61			.06		238.4	50	13.74	33.319	6.02	24.962	300.3	.185	
130	10.66	33.901	2.97			.04		201.5	75	11.72	33.379	5.16	25.403	258.3	.255	
173	9.89	34.041	2.55			.02		178.6	100	10.92	33.641	4.07	25.753	225.1	.316	
215	9.84	34.211	1.84			.02		165.2	125	10.70	33.871	3.13	25.970	204.5	.370	
256	9.50	34.271	1.35			.01		155.4	150	10.28	33.982	2.71	26.129	189.3	.420	
299	9.08	34.295	1.11			.01		147.1	200	9.86	34.160	2.10	26.340	169.3	.511	
342	8.46	34.278	1.07			.01		139.1	250	9.56	34.267	1.41	26.473	156.6	.595	
387	8.13	34.319	.76			.01		131.3	300	9.07	34.295	1.11	26.576	146.9	.674	
435	7.06	34.257	.56			.00		121.2	400	7.91	34.312	.69	26.767	128.7	.818	

RV THOMAS WASHINGTON

EXJIBIA EXPEDITION

364

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM		WIND	SPEED	WEATHER		DOMINANT WAVES	
30 57.0N		116 38.5W		08/10/66		1156		GMT	741M		310	06KT	1		115 9	
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	20.21	33.617	5.34			.01		423.1	0	20.21	33.617	5.34	23.674	423.1	0	
24	16.46	33.438	5.89			.00		352.2	10	18.70	33.536	5.61	24.000	391.9	.041	
48	13.40	33.301	6.11			.02		290.9	20	17.23	33.465	5.82	24.302	363.1	.079	
71	11.79	33.362	5.20			.16		260.7	30	15.76	33.389	5.95	24.584	336.2	.114	
94	10.71	33.564	4.39			.02		227.2	50	13.22	33.301	6.05	25.054	291.5	.177	
142	10.30	33.974	2.84			.02		190.2	75	11.56	33.393	5.05	25.443	254.5	.245	
169	9.81	34.125	2.24			.02		171.1	100	10.66	33.639	4.17	25.797	220.9	.305	
237	9.34	34.252	1.48			.03		154.3	125	10.45	33.877	3.32	26.019	199.7	.358	
284	8.48	34.181	1.70			.00		146.6	150	10.22	34.010	2.71	26.162	186.2	.407	
332	7.70	34.143	1.62			.01		138.3	200	9.72	34.165	2.03	26.367	166.7	.497	
381	7.60	34.209	1.09			.01		132.1	250	9.12	34.240	1.51	26.525	151.7	.579	
431	7.02	34.203	.89			.00		124.7	300	8.18	34.161	1.67	26.609	143.8	.656	
482	6.82	34.278	.70			.00		116.5	400	7.39	34.206	.99	26.761	129.4	.798	
									500	6.78	34.280		26.903	115.9	.928	

RV THOMAS WASHINGTON				EXJIBIA EXPEDITION										365	
LATITUDE 30 57.0N		LONGITUDE 116 38.5W		MO/DAY/YR 08/10/66		MESSENGER 2352		TIME GMT	BOTTOM 1021M	WIND 330	SPEED 07KT	WEATHER 1	DOMINANT WAVES 300 02 07		
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD
0	20.2	33.62						422.6	0	20.20	33.620		23.679	422.6	0
38	15.77	33.372						337.7	10	19.12	33.564		23.915	400.1	.041
48	14.46	33.301						315.8	20	17.98	33.499		24.150	377.7	.080
58	13.78	33.303						302.1	30	16.77	33.430		24.383	355.4	.117
67	11.69	33.384						257.3	50	14.30	33.299		24.831	312.7	.184
97	11.46	33.384						253.3	75	12.44	33.349		25.245	273.4	.258
106	11.24	33.452						244.5	100	11.39	33.403		25.483	250.7	.324
136	9.98	33.731						202.9	125	10.31	33.611		25.835	217.3	.383
146	10.24	33.871						196.8	150	10.12	33.894		26.089	193.1	.435
155	9.90 A	33.910						188.4	200	9.23	34.056		26.362	167.2	.526
185	9.50	34.002						175.3	250	8.73	34.128		26.498	154.3	.609
194	9.29	34.042						169.1	300	8.13	34.159		26.615	143.1	.686
205	9.21	34.064						166.2	400	6.82	34.174		26.813	126.4	.825
235	9.07	34.116						160.2	500	5.60	34.170		26.968	109.7	.948
245	8.84	34.124						156.2							
254	8.65	34.130						152.9							
294	8.23	34.160						144.5							
343	7.38	34.148						133.6							
403	6.80	34.175						124.0							

A1 MEAN VALUE OF 9.84 AND 9.95 DEGREES.

SPHERES II, MAI HAI (KANI) Expedition

The SPHERES II hydrographic data were collected in conjunction with a study in which taut-wire moorings were established to measure the rate of calcium carbonate dissolution at various depths in the water column. SPHERES II was sponsored by the Office of Naval Research and the National Science Foundation.

The MAI HAI data were collected on the final leg of the KANI Expedition, from Honolulu to San Diego, as a further study of the abyssal characteristics and circulation of the North Pacific Ocean. The Expedition was sponsored by the Office of Naval Research and the Marine Research Committee.

These Nansen bottle casts were made to study principally the deep and near-bottom region. Hence, the observations in the upper layers are more widely spaced than usual. Temperature interpolations in the upper layers have been made with the aid of the mechanical bathythermograph which extended to 250m depth. Salinity and oxygen interpolations were done in normal fashion by the computer but because of the wider-than-usual spacing of observed depths in the upper layers, the values are slightly less valid than usual.

Scientific personnel participating in the data collection were:

Peterson, Dr. M. N. A. (in charge)^{1/}
Hester, A. W.^{2/} (in charge, 8 Sept. -1 Oct.)^{2/}
Arsenault, R.^{3/}
Mauck, W. W.^{3/}
Rosendahl, D. V.^{3/}
Wirth, D.^{1/}

Papers resulting from SPHERES II Expedition data:

Berger, Wolfgang H., 1967. Foraminiferal ooze: solution at depths.
Science, 156: 383-385.

Berger, Wolfgang H., 1968. Radiolarian skeletons: solution at depths.
Science, 159: 1237-1239.

^{1/} 31 Aug. -8 Sept. 1966

^{2/} 31 Aug. -1 Oct. 1966

^{3/} 9 Sept. -1 Oct. 1966

Berger, Wolfgang H., 1970. Planktonic Foraminifera: selective solution and lysocline. Mar. Geol., 8: 111-138.

Lynn, Ronald J., and Joseph L. Reid, Jr., 1968. Characteristics and circulation of deep and abyssal waters. Deep-Sea Res., 15: 577-598.

Peterson, M. N. A., 1966. Calcite: rates of dissolution in a vertical profile in the central Pacific. Science, 154: 1542-1544.

Papers resulting from MAI HAI Expedition data are:

Mantyla, Arnold W., in press. On the potential temperature in the abyssal Pacific ocean. J. Mar. Res.

Reid, Joseph L., Jr., and Ronald J. Lynn, 1971. On the influence of the Norwegian-Greenland and Weddell seas upon the bottom waters of the Indian and Pacific oceans. Deep-Sea Res., 18: 1063-1088.

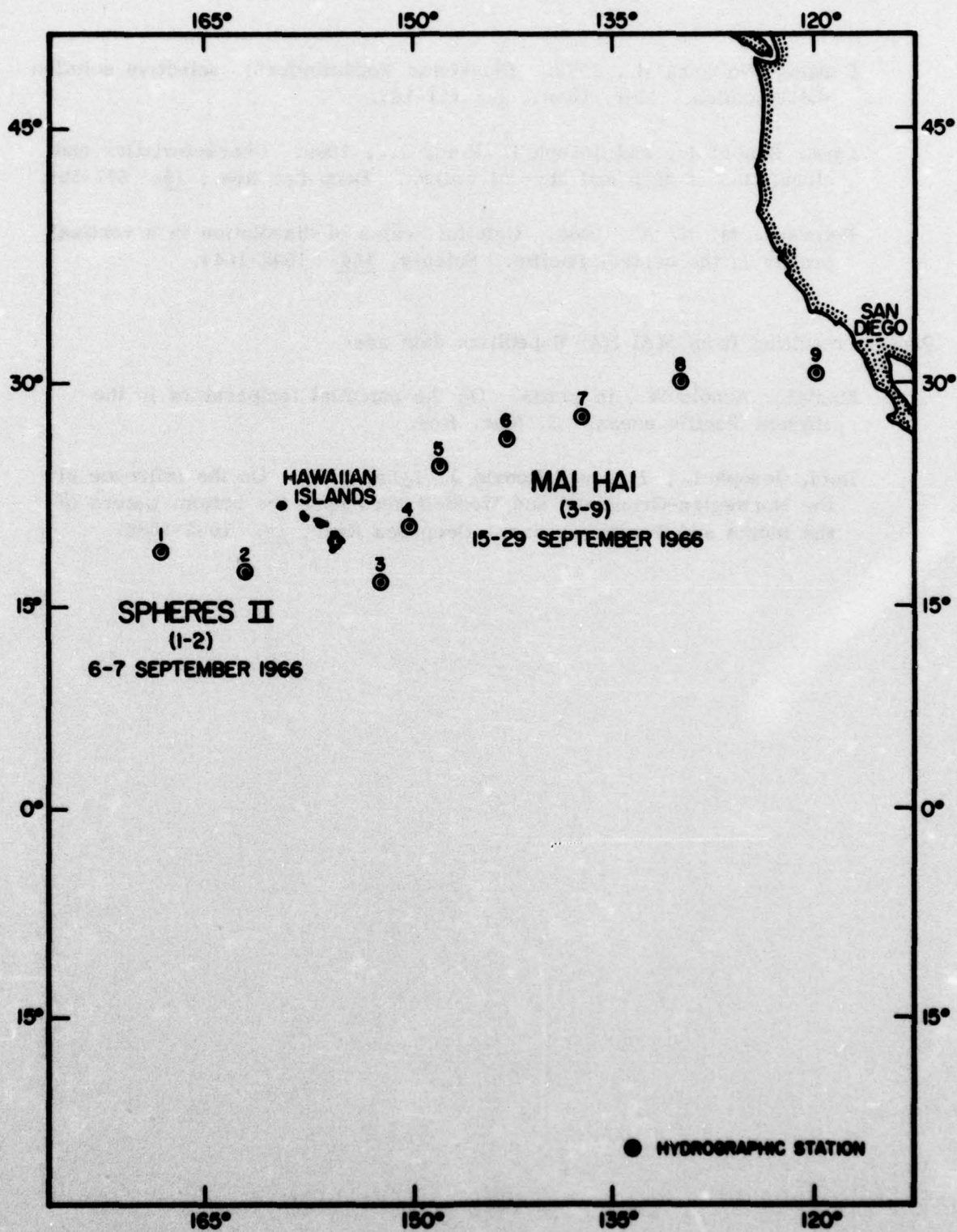


FIGURE 2

RV HORIZON

SPHERES EXPEDITION II

1

LATITUDE 18 49.5N		LONGITUDE 168 31.0W		MO/DAY/YR 09/06/66		MESSENGER TIME 0037 0349GMT		BOTTOM 5020M	WIND 060	SPEED 08KT	WEATHER 1	DOMINANT WAVES			
Z	T	S	DZ	P04	S103	N02	N03	DT	Z	T	S	DZ	S1GT	DT	DD
0	27.82	34.943	4.6					541.7	0	27.82	34.943	4.6	22.432	541.7	0
30	27.76	34.933	4.63					540.6	10	27.80	34.940	4.61	22.436	541.3	.054
49	27.72	34.947	4.75					538.3	20	27.78	34.936	4.62	22.440	541.0	.108
74	26.21	34.945	4.95					492.4	30	27.76	34.933	4.63	22.444	540.6	.163
98		35.029	4.89						50	27.72	34.946	4.76	22.467	538.4	.271
196	18.65	34.893	4.28					292.2	75	26.16	34.948	4.95	22.967	490.5	.400
294	12.62	34.342	4.3					203.7	100	24.80	35.030	4.88	23.446	444.9	.518
391	8.73	34.196	2.45					149.2	125	23.30	35.030	4.72	23.890	402.4	.625
490	7.02	34.254	1.27					120.9	150	22.20	35.020	4.96	24.197	373.2	.723
686	5.59	34.414	.86					91.3	200	18.37	34.872	4.28	25.100	287.1	.891
884	4.77	34.489	1.05					76.5	250	15.19	34.580	4.39	25.625	237.2	1.026
1081	4.12	34.530	1.33					66.7	300	12.31	34.321	4.21	26.021	199.5	1.139
1278	3.55	34.559	1.50					59.0	400	8.51	34.198	2.31	26.587	145.8	1.319
1472	3.01	34.579	1.83					52.7	500	6.91	34.263	1.25	26.872	118.8	1.459
1669	2.57	34.605	1.92					47.0	600	6.02	34.349	1.04	27.058	101.2	1.576
1865	2.28	34.621	2.17					43.5	700	5.52	34.422	.86	27.177	89.9	1.680
2065A	2.13	34.631	2.33					41.5	800	5.07	34.465	.93	27.265	81.5	1.775
21388	2.08	34.635	2.37					40.9	1000	4.37	34.516	1.22	27.384	70.3	1.946
2261A	1.98	34.643						39.5	1200	3.77	34.549	1.43	27.473	61.9	2.098
24338	1.85	34.652	2.52					37.9	1500	2.94	34.584	1.85	27.580	51.8	2.299
2457A	1.84	34.653	2.59					37.7	2000	2.17	34.629	2.29	27.682	42.1	2.583
2653A	1.76	34.659	2.71					36.7	2500	1.83	34.655	2.64	27.730	37.5	2.831
27288	1.71	34.662	2.85					36.1	3000	1.64	34.670	2.95	27.756	35.0	3.063
30228	1.64	34.670	2.96					35.0	3500	1.53	34.684	3.21	27.775	33.2	3.289
32188	1.58	34.676	3.07					34.1	4000	1.51	34.688	3.44	27.781	32.7	3.513
34148	1.54	34.679	3.16					33.6	4500	1.49	34.694	3.65	27.787	32.1	3.740
35598	1.53	34.686						33.0	5000	1.38	34.701	4.11	27.800	30.8	3.965
37078	1.50	34.683	3.35					33.0							
38058	1.49	34.685	3.44					32.8							
39048	1.49	34.685	3.40					32.8							
40028	1.51	34.688	3.44					32.7							
40998	1.49	34.689	3.47					32.5							
41978	1.50	34.688	3.52					32.6							
42958	1.49	34.689	3.53					32.5							
43948	1.50	34.689	3.61					32.6							
44928	1.49	34.694	3.64					32.1							
45898	1.49	34.692	3.72					32.3							
47878	1.44	34.694	3.91					31.9							
49738	1.39	34.703	4.17					30.8							
49838	1.38	34.701	4.11					30.8							

RV HORIZON

SPHERES EXPEDITION II

2

LATITUDE 17 03.5N		LONGITUDE 162 24.0W		MO/DAY/YR 09/07/66		MESSENGER TIME 1606 1900GMT		BOTTOM 5726M	WIND 060	SPEED 14KT	WEATHER 1	DOMINANT WAVES 060 10 06			
Z	T	S	DZ	P04	S103	N02	N03	DT	Z	T	S	DZ	S1GT	DT	DD
0	27.2	35.003						518.2	0	27.2	35.003		22.677	518.2	0
48	27.16	34.990	4.67					518.0	10	27.19	35.000		22.678	518.2	.052
97	24.00	35.075	4.94					418.8	20	27.18	34.997		22.679	518.1	.104
145	21.41	35.081	4.65					347.8	30	27.18	34.995		22.679	518.1	.156
193	18.66	34.903	4.24					291.7	50	27.13	34.990	4.68	22.690	517.0	.259
291	11.24	34.200	3.72					189.3	75	25.58	35.040	4.90	23.215	466.9	.383
389	8.30	34.174	2.5					144.5	100	23.82	35.080	4.93	23.775	413.4	.494
487	6.66	34.256	1.32					116.1	125	22.43	35.098	4.81	24.192	373.7	.593
683	5.56	34.446	1.01					88.5	150	21.17	35.076	4.60	24.524	342.0	.684
879	4.60	34.504	1.14					73.6	200	18.10	34.850	4.21	25.151	282.3	.843
1077	3.88	34.534	1.18					64.0	250	14.22	34.440	3.95	25.727	227.5	.974
1272	3.25	34.562						56.1	300	10.82	34.182	3.63	26.190	183.5	1.080
1466	2.82	34.587	1.67					50.4	400	8.07	34.181	2.35	26.642	140.7	1.249
1661	2.49	34.61	1.88					46.0	500	6.54	34.271	1.30	26.928	113.5	1.383
1858	2.25	34.623	2.09					43.1	600	5.84	34.376	1.14	27.101	97.1	1.496
2053	2.01	34.642	2.41					39.8	700	5.47	34.454	1.01	27.209	86.9	1.596
2137A	1.92	34.647						38.7	800	4.96	34.490	1.07	27.297	78.5	1.688
2248	1.88	34.650	2.59					38.2	1000	4.14	34.524	1.16	27.415	67.3	1.852
2432A	1.77	34.660	2.67					36.7	1200	3.47	34.552	1.31	27.505	58.8	1.997
2443	1.78	34.661	2.72					36.7	1500	2.76	34.592	1.71	27.603	49.5	2.188
2638	1.72	34.668	2.84					35.7	2000	2.07	34.638	2.32	27.697	40.6	2.460
2726A	1.68	34.668	2.86					35.4	2500	1.76	34.663	2.76	27.741	36.4	2.700
2834	1.65	34.671	2.90					35.0	3000	1.61	34.674	3.00	27.782	34.5	2.926
3022A	1.60	34.674	3.02					34.4	3500	1.52	34.682	3.26	27.775	33.3	3.149
3218A	1.55	34.677	3.12					33.8	4000	1.48	34.688	3.51	27.783	32.5	3.372
3414A	1.52	34.684	3.21					33.1	4500	1.45	34.696	3.79	27.792	31.7	3.596
3512A	1.52	34.681						33.3	5000	1.45	34.700	4.03	27.795	31.4	3.822
3610A	1.50	34.683	3.33					33.0	5500	1.48	34.700	4.12	27.792	31.7	4.056
3708A	1.49	34.685	3.40					32.8							
3807A	1.48	34.685	3.42					32.7							
3905A	1.49	34.690	3.48					32.4							
4003A	1.48	34.688	3.51					32.5							
4100A	1.48	34.692	3.60					32.2							
4297A	1.46	34.690	3.68					32.2							
4493A	1.45	34.696	3.79					31.7							
4789A	1.44	34.701	3.95					31.3							
5083A	1.45	34.700	4.05					31.4							
5377A	1.47	34.700	4.12					31.5							
5662A	1.50	34.699	4.13					31.8							
5671A	1.49	34.700	4.08					31.7							

AI EAST II.
BI EAST III.

RV HORIZON								MAI HAI EXPEDITION								3
LATITUDE 16 30.0N		LONGITUDE 152 10.0W		MO/DAY/YR 09/15/66		MESSENGER TIME 1900 2250GMT		BOTTOM	WIND 070	SPEED 14KT	WEATHER 1	DOMINANT WAVES 060 08 04				
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD	
0	26.57	34.524	4.68					533.5	0	26.57	34.524	4.68	22.516	533.5	0	
10	26.56	34.523	4.69					533.3	10	26.56	34.523	4.69	22.520	533.3	.053	
49	26.58	34.527	4.66					533.6	20	26.57	34.526	4.66	22.519	533.4	.107	
99	23.40	34.821	5.04					420.3	30	26.57	34.525	4.66	22.518	533.5	.160	
198	15.34	34.449	3.72					249.9	50	26.58	34.530	4.66	22.519	533.4	.267	
296	9.50	34.294	1.90					153.7	75	24.80	34.680	4.88	23.181	470.1	.393	
399	8.68	34.535	.3					123.3	100	23.33	34.820	5.04	23.724	418.3	.505	
496	7.34	34.467	.38					109.3	125	21.60	34.770	4.84	24.175	375.3	.605	
594	6.44	34.479	.48					96.7	150	20.50	34.720	4.57	24.435	350.4	.697	
791	5.17	34.499	.57					80.1	200	15.17	34.442	3.68	25.522	247.0	.850	
988	4.36	34.530	.86					69.1	250	11.80	34.320	2.77	26.118	190.3	.962	
1183	3.74	34.555	1.16					61.1	300	9.47	34.314	1.82	26.526	151.7	1.050	
1380	3.26	34.580	1.38					54.8	400	8.67	34.535	.30	26.827	123.1	1.195	
1576	2.84	34.595	1.60					50.0	500	7.30	34.467	.38	26.978	108.7	1.318	
1773	2.43	34.611	1.91					45.4	600	6.39	34.480	.48	27.112	96.1	1.429	
1970	2.15	34.630	2.13					41.8	700	5.68	34.490	.53	27.211	86.7	1.529	
2093A	2.08	34.639	2.34					40.6	800	5.13	34.501	.58	27.286	79.5	1.622	
2166	1.98	34.643	2.38					39.5	1000	4.32	34.532	.88	27.402	68.6	1.789	
2289A	1.93	34.647	2.47					38.8	1200	3.69	34.557	1.18	27.487	60.5	1.938	
2363	1.86	34.653	2.57					37.9	1500	3.00	34.591	1.51	27.580	51.7	2.137	
2485A	1.82	34.657	2.63					37.3	2000	2.13	34.633	2.19	27.688	41.5	2.419	
2682A	1.73	34.664	2.79					36.1	2500	1.81	34.658	2.64	27.734	37.2	2.664	
2878A	1.67	34.672	2.85					35.0	3000	1.64	34.673	2.93	27.759	34.8	2.895	
3074A	1.62	34.673	2.98					34.6	3500	1.53	34.683	3.23	27.775	33.3	3.119	
3270A	1.58	34.676						34.1	4000	1.45	34.690	3.64	27.786	32.2	3.341	
3466A	1.54	34.683	3.20					33.3								
3662A	1.50	34.683	3.36					33.0								
3760A	1.49	34.689	3.44					32.5								
3858A	1.48	34.690	3.60					32.4								
3956A	1.46	34.689	3.61					32.3								
4054A	1.45															
4153A	1.44	34.691	3.77					32.0								
4202A	1.44	34.694	3.80					31.8								
4250A	1.44	34.697	3.80					31.6								
4299A	1.43	34.696	3.92					31.6								
4349A	1.43	34.696	3.88					31.6								
4436A	1.43	34.698	3.90					31.4								
4446A	1.42	34.697	3.88					31.4								

RV HORIZON				MAI HAI EXPEDITION												4
LATITUDE 20 30.0N		LONGITUDE 150 00.0W		MO/DAY/YR 09/18/66		MESSENGER TIME 1910 0125GMT		BOTTOM 5272M	WIND 060	SPEED 14KT	WEATHER 1	DOMINANT WAVES 060 05 05				
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD	
0	25.61	35.103	4.79					463.2	0	25.61	35.103	4.79	23.253	463.2		
59	22.90	34.980	5.26					395.0	10	25.61	35.100	4.79	23.251	463.4	.046	
99	20.10	35.011	4.93					319.2	20	25.61	35.100	4.79	23.251	463.4	.093	
197	13.86	34.306	4.30					230.1	30	25.61	35.100	4.79	23.251	463.4	.139	
493	6.02	34.204	1.03					112.1	50	25.61	35.100	4.79	23.251	463.4	.232	
788	4.62	34.475	.85					76.0	75	21.60	35.000	5.13	24.349	358.7	.336	
982	4.06	34.522	1.00					66.7	100	20.03	35.007	4.92	24.778	317.8	.421	
1277	3.26	34.557	1.40					56.5	125	18.31	34.860	4.76	25.107	286.5	.497	
1570	2.66	34.596	1.66					48.4	150	16.63	34.650	4.62	25.351	263.3	.567	
1862	2.20	34.623	2.07					42.7	200	13.72	34.295	4.27	25.721	228.1	.693	
2156	1.94	34.639	2.37					39.5	250	11.61	34.175	3.68	26.042	197.6	.802	
2452	1.76	34.654	2.66					37.1	300	9.83	34.122	3.10	26.316	171.6	.897	
2745	1.65	34.667	2.80					35.3	400	7.25	34.138	2.00	26.727	132.6	1.056	
3041	1.59	34.672	3.01					34.5	500	5.95	34.211	1.02	26.957	110.8	1.184	
3237	1.56	34.683	3.12					33.4	600	5.27	34.320	.90	27.127	94.7	1.293	
3433	1.53	34.684	3.24					33.2	700	4.99	34.460	.88	27.270	81.1	1.389	
3443A	1.52	34.682	3.27					33.2	800	4.58	34.478	.85	27.331	75.3	1.475	
3532	1.52	34.683	3.30					33.2	1000	4.01	34.525	1.02	27.429	66.0	1.634	
3541A	1.52	34.686	3.27					32.9	1200	3.46	34.550	1.29	27.505	58.9	1.777	
3630	1.51	34.684	3.38					33.0	1500	2.79	34.588	1.60	27.597	50.1	1.969	
3639A	1.50	34.685	3.35					32.9	2000	2.06	34.632	2.22	27.693	41.0	2.243	
3731	1.50	34.686	3.44					32.8	2500	1.74	34.657	2.69	27.739	36.7	2.484	
3738A	1.50	34.68	3.42					33.3	3000	1.60	34.672	2.98	27.761	34.6	2.711	
3829	1.48	34.687	3.44					32.6	3500	1.52	34.683	3.29	27.776	33.2	2.934	
3834A	1.48	34.688	3.47					32.5	4000	1.47	34.687	3.59	27.783	32.5	3.156	
3933A	1.48	34.686	3.54					32.7	4500	1.45	34.700	3.89	27.794	31.4	3.380	
4030A	1.47	34.688						32.4	5000	1.46	34.700	4.03	27.794	31.5	3.606	
4128A	1.46	34.692	3.68					32.1								
4226A	1.46	34.692	3.74					32.1								
4324A	1.46	34.692	3.87					32.1								
4422A	1.46	34.696	3.81					31.8								
4519A	1.45	34.70	3.91					31.6								
4617A	1.46	34.694	3.87					31.9								
4715A	1.45	34.696	3.91					31.7								
4813A	1.45	34.70	4.00					31.4								
4911A	1.46	34.70	4.01					31.5								
5008A	1.46	34.700	4.03					31.5								
5106A	1.48	34.698	4.06					31.8								
5194A	1.48	34.699	4.08					31.7								
5204A	1.48	34.701	4.02					31.5								

RV HORIZON

MAI HAI EXPEDITION

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LATITUDE 24 30.0N				LONGITUDE 148 00.0W				MO/DAY/YR 09/21/66				MESSENGER TIME 0504 0833GMT				BOTTOM 5331M	WIND 080	SPEED 14KT	WEATHER 1	DOMINANT WAVES 060 08 06			
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD								
0	24.97	35.187	4.85					438.5	0	24.97	35.187	4.85	23.512	438.5	0								
69	22.91	35.228	5.11					377.4	10	24.97	35.190	4.92	23.515	438.2	.044								
99	20.64	35.182	5.07					320.6	20	24.97	35.190	4.98	23.515	438.2	.088								
196	17.20	34.840	4.86					262.2	30	24.97	35.190	5.02	23.515	438.2	.132								
492	6.50	34.019	2.63					131.8	50	23.92	35.240	5.09	23.867	404.6	.216								
787	4.37	34.353	.65					82.5	75	22.45	35.220	5.11	24.277	365.5	.313								
983	3.93	34.486	.9					68.1	100	20.59	35.179	5.07	24.762	319.3	.400								
1277	3.28	34.544	1.36					57.7	125	19.43	35.100	5.02	25.006	296.1	.477								
1571	2.70	34.583	1.65					49.7	150	18.46	35.000	4.98	25.176	279.9	.551								
1865	2.26	34.611	1.93					44.1	200	17.04	34.820	4.84	25.384	260.1	.689								
2158	1.95	34.634	2.12					40.0	250	14.94	34.570	4.53	25.672	232.7	.815								
2454	1.74	34.654	2.49					36.9	300	12.97	34.380	4.20	25.938	207.5	.929								
2748	1.64	34.670	2.72					35.0	400	9.38	34.130	3.44	26.396	163.9	1.123								
3043	1.56	34.676	2.94					34.0	500	6.36	34.027	2.56	26.759	129.5	1.277								
3238	1.53	34.677	3.09					33.7	600	5.29	34.170	1.73	27.006	106.1	1.401								
3435	1.51	34.683	3.21					33.1	700	4.73	34.290	1.07	27.165	91.0	1.507								
3485A	1.50	34.684	3.25					33.0	800	4.33	34.363	.67	27.267	81.4	1.601								
3534	1.51	34.684	3.24					33.0	1000	3.89	34.492	.93	27.415	67.3	1.766								
3585A	1.50	34.690U	3.26					33.0	1200	3.45	34.538	1.24	27.496	59.7	1.911								
3631	1.51	34.684	3.46					33.0	1500	2.83	34.576	1.59	27.583	51.4	2.106								
3682A	1.49	34.685	3.32					32.8	2000	2.10	34.623	2.01	27.683	42.0	2.387								
3730	1.50	34.688	3.3					32.6	2500	1.72	34.658	2.53	27.740	36.5	2.630								
3781A	1.50	34.689	3.36					32.6	3000	1.57	34.676	2.91	27.766	34.1	2.855								
3827	1.49								3500	1.50	34.684	3.25	27.778	33.0	3.075								
3879A	1.48	34.693	3.41					32.1	4000	1.48	34.692	3.48	27.786	32.2	3.296								
3978A	1.48	34.692	3.48					32.2	4500	1.51	34.698	3.63	27.789	32.0	3.522								
4076A	1.49	34.692						32.3	5000	1.51	34.700	3.83	27.790	31.8	3.753								
4173A	1.49	34.696	3.52					32.0															
4271A	1.51	34.693	3.50					32.3															
4370A	1.50	34.690	3.55					32.5															
4468A	1.51	34.698	3.63					32.0															
4567A	1.50	34.697	3.64					32.0															
4665A	1.51	34.694	3.70					32.3															
4763A	1.51	34.701	3.74					31.7															
4863A	1.51	34.696	3.78					32.1															
4961A	1.51	34.700	3.82					31.8															
5060A	1.52	34.699	3.84					32.0															
5158A	1.53	34.698	3.90					32.1															
5247A	1.54	34.699	3.90					32.1															
5257A	1.53	34.699	3.87					32.0															

RV HORIZON

MAI HAI EXPEDITION

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LATITUDE 26 20.0N				LONGITUDE 143 00.0W				MO/DAY/YR 09/23/66				MESSENGER TIME 0145 0534GMT				BOTTOM 4842M	WIND 300	SPEED 02KT	WEATHER 1	DOMINANT WAVES 060 10 10			
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	S1GT	DT	DD								
0	24.49	35.386	4.91					410.3	0	24.49	35.386	4.91	23.808	410.3		0							
59	22.26	35.280	5.25					356.0	10	24.41	35.390	4.92	23.835	407.7	.041								
99	19.64	35.112	5.07					300.4	20	24.32	35.380	4.94	23.854	405.9	.082								
196	14.89	34.494	4.75					237.2	30	24.20	35.380	4.98	23.890	402.5	.122								
393	8.41	34.045	4.12					155.7	50	23.00	35.320	5.20	24.196	373.2	.200								
591	5.49	34.115	1.14					112.5	75	21.24	35.220	5.20	24.615	333.3	.289								
787	4.42	34.348	.6					83.4	100	19.58	35.107	5.07	24.971	299.4	.369								
985	3.94	34.470	1.00					69.4	125	18.20	34.950	4.98	25.203	277.4	.442								
1180	3.48	34.526	1.24					60.9	150	16.60	34.720	4.89	25.412	257.4	.510								
1376	3.04	34.559	1.44					54.4	200	14.72	34.475	4.75	25.647	235.1	.636								
1573	2.67	34.582	1.64					49.5	250	12.73	34.290	4.60	25.916	209.6	.750								
1770	2.38	34.599	1.67					45.9	300	10.98	34.160	4.57	26.145	187.8	.852								
1966	2.14	34.621	1.86					42.4	400	8.26	34.042	4.02	26.504	153.7	1.030								
2260	1.86	34.642	2.19					38.7	500	6.50	34.052	2.53	26.761	129.4	1.179								
2555	1.70	34.656	2.53					36.5	600	5.41	34.126	1.12	26.956	110.9	1.306								
2849	1.61	34.675	2.77					34.4	700	4.75	34.245	.84	27.128	94.6	1.416								
3045	1.55	34.676	2.95					33.9	800	4.38	34.359	.61	27.258	82.2	1.512								
3060A	1.55	34.676	2.96					33.9	1000	3.90	34.476	1.02	27.401	68.7	1.679								
3143	1.53	34.681	3.04					33.4	1200	3.43	34.530	1.26	27.491	60.1	1.826								
3159A	1.52	34.680	3.00					33.4	1500	2.80	34.575	1.58	27.586	51.2	2.022								
3242	1.52	34.684	3.11					33.1	2000	2.10	34.625	1.90	27.684	41.9	2.301								
3257A	1.51	34.682	3.10					33.2	2500	1.72	34.654	2.47	27.737	36.8	2.544								
3340	1.50	34.683	3.12					33.0	3000	1.56	34.677	2.91	27.768	33.9	2.770								
3355A	1.49	34.683	3.17					33.0	3500	1.48	34.688	3.25	27.783	32.5	2.988								
3453A	1.48	34.689	3.22					32.4	4000	1.49	34.694	3.46	27.787	32.1	3.207								
3550A	1.48	34.686	3.28					32.7	4500	1.53	34.694	3.57	27.784	32.4	3.434								
3648A	1.48	34.686						32.7															
3747A	1.48	34.694	3.38					32.1															
3846A	1.47	34.692	3.46					32.1															
3944A	1.48	34.693	3.44					32.1															
4041A	1.49	34.694	3.48					32.1															
4139A	1.49	34.692	3.47					32.3															
4237A	1.51	34.693	3.51					32.3															
4335A	1.51	34.698	3.54					32.0															
4434A	1.52	34.699	3.57					32.3															
4533A	1.53	34.694	3.57					32.4															
4631A	1.54	34.697	3.61					32.2															
4729A	1.55	34.694	3.64					32.5															
4820A	1.55	34.696	3.65					32.4															
4830A	1.54	34.700	3.64					32.0															

RV HORIZON				MAI HAI EXPEDITION												7
LATITUDE 20 00.0N		LONGITUDE 137 30.0W		MO/DAY/YR 09/24/66	MESSENGER TIME 1104 1406GMT			BOTTOM 4698M	WIND	SPEED	WEATHER 1	DOMINANT WAVES 300 07 10				
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	22.91	35.268	5.00					374.5	0	22.91	35.268	5.00	24.183	374.5	0	
49	21.99	35.228	5.20					352.5	10	22.87	35.260	5.01	24.188	374.0	.037	
99	17.54	34.573	5.45					289.4	20	22.83	35.260	5.02	24.200	372.9	.075	
197	12.10	34.039	4.86					216.4	30	22.77	35.260	5.04	24.217	371.3	.112	
393	6.90	34.012	3.00					137.4	50	21.88	35.212	5.21	24.432	350.8	.185	
591	5.12	34.215	.61					100.9	75	19.00	34.790	5.35	24.880	308.1	.268	
788	4.40	34.378	.40					81.0	100	17.50	34.570	5.45	25.084	288.7	.343	
985	3.86	34.474	.83					68.4	125	16.67	34.510	5.36	25.235	274.3	.414	
1181	3.44	34.515	1.12					61.3	150	16.00	34.440	5.23	25.336	264.7	.483	
1377	3.00	34.557	1.32					54.2	200	11.98	34.030	4.85	25.860	214.9	.605	
1573	2.67	34.578	1.45					49.8	250	10.15	33.960	4.44	26.135	188.7	.708	
1769	2.35	34.598	1.64					45.7	300	8.68	33.950	3.97	26.367	166.7	.800	
1965	2.12	34.619	1.86					42.4	400	6.80	34.019	2.90	26.694	135.7	.957	
2159	1.95	34.632	2.06					40.1	500	5.70	34.122	1.60	26.918	114.5	1.088	
2453	1.74	34.652	2.42					37.1	600	5.07	34.224	.60	27.074	99.7	1.201	
2646	1.68	34.661	2.59					36.0	700	4.65	34.313	.49	27.193	88.4	1.302	
2841	1.61	34.667	2.73					35.0	800	4.36	34.386	.42	27.281	80.0	1.394	
2899A	1.57	34.667	2.86					34.7	1000	3.83	34.478	.86	27.411	67.7	1.559	
2939	1.67	34.668	2.85						1200	3.40	34.520	1.14	27.487	60.6	1.705	
2998A	1.58	34.672	2.87					34.4	1500	2.79	34.573	1.40	27.584	51.3	1.900	
3036	1.57	34.674	2.90					34.2	2000	2.09	34.622	1.90	27.684	41.9	2.180	
3096A	1.54	34.673	2.97					34.1	2500	1.72	34.655	2.47	27.738	36.8	2.423	
3133	1.55	34.674	2.97					34.1	3000	1.58	34.673	2.87	27.763	34.4	2.650	
3194A	1.52	34.679	3.00					33.5	3500	1.52	34.676	3.16	27.770	33.7	2.873	
3293A	1.52	34.682	3.07					33.2	4000	1.52	34.683	3.29	27.776	33.2	3.099	
3391A	1.52	34.679	3.09					33.5	4500	1.56	34.690	3.47	27.778	32.9	3.331	
3488A	1.52	34.675						33.8								
3587A	1.50	34.683	3.21					33.0								
3684A	1.51	34.680	3.22					33.3								
3784A	1.52	34.682	3.27					33.2								
3881A	1.53	34.686	3.32					32.9								
3980A	1.52	34.683	3.28					33.2								
4078A	1.53	34.683	3.36					33.2								
4175A	1.53	34.686	3.36					33.0								
4273A	1.54	34.685	3.39					33.2								
4372A	1.55	34.684	3.41					33.3								
4471A	1.56	34.690	3.45					32.9								
4569A	1.56	34.689	3.52					33.0								
4656A	1.58	34.686	3.50					33.4								
4666A	1.58	34.688	3.45					33.2								

RV HORIZON				MAI HAI EXPEDITION												8	
LATITUDE 30 00.0N		LONGITUDE 130 00.0W		MO/DAY/YR 09/26/66		MESSENGER TIME 1702 2100GMT		BOTTOM 4334M	WIND 040	SPEED 05KT	WEATHER 1	DOMINANT WAVES 350 03					
Z	T	S	OZ	PD4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD		
0	20.71	34.152	5.26					396.9	0	20.71	34.152	5.26	23.948	396.9			
49	18.38	33.933	5.72					355.5	10	20.63	34.140	5.29	23.960	395.8	.040		
99	15.46	33.837	5.64					297.2	20	20.22	34.090	5.42	24.031	389.0	.079		
148	12.33	33.648	5.09					249.4	30	20.18	34.090	5.43	24.041	388.0	.118		
197	9.74	33.812	4.27					193.1	50	18.26	33.927	5.72	24.408	353.1	.192		
247	9.44	34.047	4.80					171.0	75	15.70	33.850	5.60	24.951	301.3	.275		
296	8.35	34.021	4.2					156.6	100	15.45	33.830	5.64	24.991	297.5	.350		
345	7.52	34.007	3.64					146.0	125	14.50	33.780	5.40	25.159	281.5	.423		
394	6.62	34.005	2.76					134.3	150	12.17	33.648	5.05	25.527	246.6	.490		
493	5.55	34.075	1.6					116.2	200	9.72	33.835	4.30	26.109	191.2	.601		
592	4.98	34.170	.78					102.7	250	9.38	34.049	4.78	26.333	170.0	.694		
788	4.24	34.366	.47					80.2	300	8.28	34.020	4.16	26.483	155.7	.778		
986	3.75	34.472	.77					67.5	400	6.53	34.008	2.67	26.722	133.1	.928		
1182	3.28	34.518	1.02					59.6	500	5.50	34.082	1.53	26.911	115.2	1.058		
1377	2.93	34.552	1.26					54.0	600	4.94	34.179	.77	27.053	101.6	1.172		
1575	2.63	34.583	1.42					49.1	700	4.52	34.283	.61	27.183	89.4	1.275		
1770	2.37	34.602	1.65					45.6	800	4.21	34.375	.48	27.289	79.3	1.366		
1874A	2.24	34.618	1.80					43.4	1000	3.71	34.477	.79	27.421	66.8	1.528		
1965	2.17	34.620	1.88					42.7	1200	3.24	34.522	1.04	27.503	59.1	1.671		
2072A	2.06	34.633	1.96					40.9	1500	2.74	34.573	1.36	27.589	50.8	1.863		
2160	1.97	34.642	2.10					39.5	2000	2.14	34.624	1.90	27.681	42.1	2.143		
2268A	1.90	34.641	2.19					39.1	2500	1.78	34.654	2.37	27.733	37.3	2.389		
2355	1.84								3000	1.57	34.667	2.80	27.759	34.8	2.618		
2462A	1.80	34.650	2.33					37.6	3500	1.50	34.684	3.12	27.778	33.0	2.840		
2659A	1.70	34.664	2.56					35.9	4000	1.53	34.686	3.31	27.777	33.0	3.064		
2854A	1.62	34.665	2.69					35.2									
3049A	1.56	34.669						34.5									
3147A	1.54	34.679	2.91					33.6									
3246A	1.53	34.677	2.99					33.7									
3344A	1.51	34.678	3.08					33.5									
3442A	1.51	34.684	3.09					33.0									
3540A	1.50	34.684	3.14					33.0									
3638A	1.51	34.685	3.19					32.9									
3735A	1.51	34.688	3.25					32.7									
3833A	1.51	34.684	3.30					33.0									
3932A	1.52	34.685	3.31					33.0									
4029A	1.53	34.696U	3.32														
4127A	1.54	34.686	3.37					33.1									
4216A	1.55	34.691	3.32					32.8									
4225A	1.54	34.689	3.32					32.8									

AI CAST II.

RV HORIZON				MAI MAI EXPEDITION												9
LATITUDE 30 40.0N		LONGITUDE 120 40.0W		MO/DAY/YR 09/29/66		MESSENGER TIME 1703 2120GMT		BOTTOM 3776M	WIND 120	SPEED 02KT	WEATHER 1	DOMINANT WAVES 340 08				
Z	T	S	OZ	PO4	SI03	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	18.09	33.651	5.52					369.2	0	18.09	33.651	5.52	24.238	369.2	0	
10	18.04	33.652	5.54					368.0	10	18.04	33.652	5.54	24.251	368.0	.037	
40	14.54	33.209	6.04					324.1	20	17.99	33.650	5.55	24.262	367.0	.074	
99	10.23	33.435	4.54					228.9	30	17.93	33.640	5.59	24.269	366.3	.110	
148	9.04	33.866	3.34					178.3	50	13.58	33.180	5.90	24.889	307.3	.178	
197	8.31	34.010	3.05					156.8	75	11.59	33.240	5.35	25.320	266.2	.250	
245	7.68	34.077	2.1					143.0	100	10.19	33.446	4.51	25.727	227.5	.312	
295	7.21	34.117	1.64					133.6	125	9.44	33.682	3.81	26.037	198.1	.366	
344	6.98	34.210	.96					123.7	150	9.00	33.876	3.33	26.258	177.1	.414	
393	6.69	34.266	.67					115.8	200	8.27	34.016	2.99	26.482	155.8	.498	
443	6.40	34.297	.52					109.8	250	7.62	34.081	2.05	26.628	141.9	.575	
492	6.07	34.326	.39					103.6	300	7.18	34.126	1.57	26.727	132.6	.646	
590	5.43	34.368	.33					92.9	400	6.65	34.271	.64	26.914	114.9	.775	
689	4.99	34.408	.37					85.0	500	6.01	34.330	.39	27.043	102.6	.890	
788	4.56	34.432	.45					78.6	600	5.38	34.373	.33	27.155	92.0	.994	
885	4.26	34.461	.52					73.3	700	4.94	34.411	.38	27.237	84.2	1.089	
984	3.92	34.490	.65					67.7	800	4.52	34.436	.46	27.304	77.9	1.179	
1179	3.43	34.533	.93					59.9	1000	3.87	34.494	.67	27.419	67.0	1.340	
1376	3.00	34.568	1.14					53.4	1200	3.38	34.538	.95	27.502	59.1	1.484	
1421A	2.91	34.572	1.19					52.3	1500	2.77	34.581	1.26	27.593	50.5	1.677	
1572	2.66	34.590	1.35					48.9	2000	2.11	34.636	1.96	27.693	41.0	1.953	
1617A	2.59	34.597	1.44					47.7	2500	1.80	34.660	2.44	27.736	37.0	2.196	
1813A	2.28	34.617	1.71					43.8	3000	1.64	34.674	2.79	27.760	34.7	2.425	
2009A	2.10	34.636	1.97					40.9	3500	1.58	34.685	3.01	27.773	33.5	2.651	
2207A	1.94	34.650	2.20					38.7								
2403A	1.84	34.656	2.36					37.5								
2600A	1.77	34.663						36.4								
2796A	1.70	34.671	2.67					35.3								
2992A	1.64	34.674	2.79					34.7								
3091A	1.62	34.675	2.83					34.5								
3189A	1.62	34.678	2.87					34.2								
3287A	1.59	34.680	2.92					33.9								
3385A	1.59	34.681	2.97					33.8								
3439A	1.58	34.684	2.98					33.5								
3538A	1.58	34.685	3.02					33.4								
3629A	1.57	34.686	3.02					33.3								
3680A	1.58	34.689	3.05					33.1								
3729A	1.58	34.686	3.06					33.4								
3768A	1.58	34.686	3.07					33.4								
3778A	1.57	34.688	3.02					33.1								

A) CAST 11.

BUOY BOUNCE Expedition

The purpose of BUOY BOUNCE Expedition was to study the vertical migration of plankton by means of a vertically migrating drogue and bongo net tows. BUOY BOUNCE was sponsored by the National Science Foundation.

Determinations of reactive phosphate were made with a DU spectrophotometer by the method suggested by Murphy and Riley (1960). Chlorophyll and phaeophytin were determined using the method of Yentsch and Menzel (1963). Due to insufficient acidification the chlorophyll-a and phaeophytin data on stations H-1, H-2, and H-3 may be slightly in error.

S/T/D data for 32 lowerings are presented in two forms: 1) as tabulated values at standard depths, and 2) as continuous traces of temperature and salinity versus depth. The manufacturer of the Model 9006 S/T/D, Plessey Environmental Systems, claims an accuracy of $\pm 0.05^{\circ}\text{C}$ with repeatability of $\pm 0.01^{\circ}\text{C}$ for temperature and an accuracy of $\pm 0.03\%$ with repeatability of $\pm 0.01\%$ for salinity. The time given is "start down" time.

Scientific personnel participating in the data collection were:

Miller, C. B., (in charge)
Brown, C. A.
Bryan, W. R.
Curtis, T. C.
Dana, T. F.
Frost, B. W.
Graham, J. B.
Mantyla, A. W.
Santantonio, D.
Snyder, H. G.
Wiebe, P. H.
Wilcox, M. E.

Papers resulting from BUOY BOUNCE Expedition data are:

Miller, Charles B., 1969. Some environmental consequences of vertical migration. Doctoral dissertation, Univ. Calif. San Diego, 308 pp.

Miller, Charles B., 1970. Some environmental consequences of vertical migration in marine zooplankton. *Limnol. & Oceanogr.*, 15: 727-741.

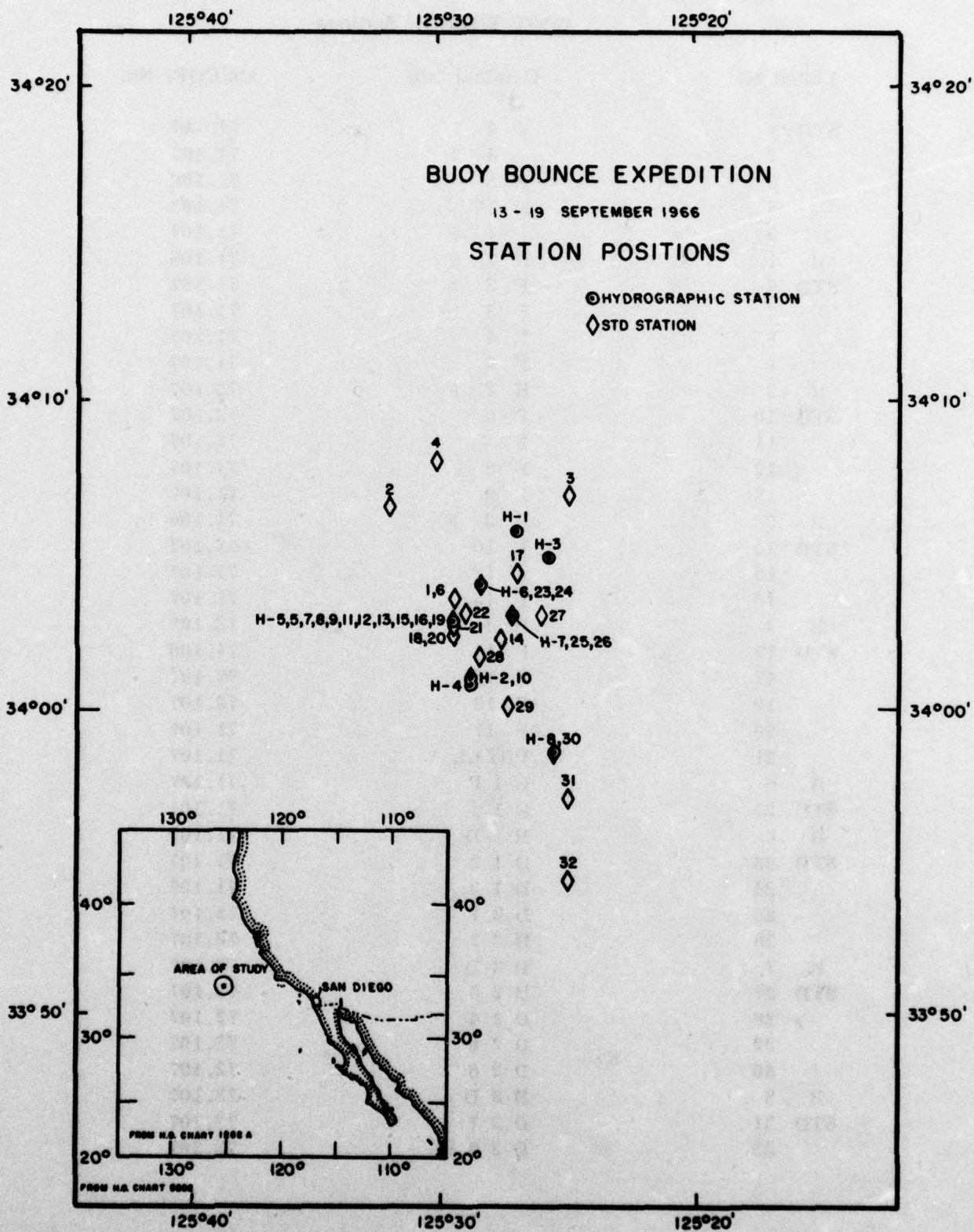


FIGURE 3

BUOY BOUNCE Stations

Listed No.	Original No.	CalCOFI No.
STD 1	4 1	71.107
2	4 2	71.107
3	M 8	71.106
4	M 10	71.107
5	4 5	71.107
H 1	H 1 F	71.106
STD 6	F 2	71.107
7	F 3	71.107
8	F 4	71.107
9	F 5	71.107
H 2	H 2 F	72.107
STD 10	F 6	72.107
11	F 7	71.107
12	F 8	71.107
13	F 9	71.107
H 3	H 3 F	71.106
STD 14	F 10	72.107
15	F 12	71.107
16	F 13	71.107
H 4	H 4 F	72.107
STD 17	F 14	71.106
18	F 15	72.107
19	F 16	72.107
20	F 17	71.107
21	PHYLL	71.107
H 5	H 1 P	71.107
STD 22	D 1 1	71.107
H 6	H 1 D	71.107
STD 23	D 1 2	71.107
24	D 1 3	71.107
25	D 2 1	72.107
26	D 2 2	72.107
H 7	H 2 D	72.107
STD 27	D 2 3	72.107
28	D 2 4	72.107
29	D 2 5	72.107
30	D 2 6	72.107
H 8	H 3 D	72.107
STD 31	D 2 7	72.107
32	D 2 8	72.107

RV ALEXANDER AGASSIZ BUOY BOUNCE EXPEDITION STD 1

LATITUDE				LONGITUDE				MO/DAY/YR				MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 03.0N				125 29.5W				09/13/66				1043				4536M							
Z	T	S	OZ	P04	S103	N02	N03	DT								Z	T	S	OZ	SIGT	DT	DD	
																0	18.08	33.09		23.813	409.8	0	
																10	18.08	33.09		23.813	409.8	.041	
																20	18.08	33.09		23.813	409.8	.082	
																30	17.76	33.14		23.928	398.8	.123	
																50	14.13	33.03		24.660	329.0	.196	
																75	11.92	33.03		25.096	287.5	.273	
																100	11.59	33.27		25.343	264.0	.342	
																125	10.08	33.49		25.781	222.4	.404	
																150	9.61	33.68		26.008	200.9	.457	
																200	8.79	33.98		26.374	166.1	.551	
																250	8.18	34.06		26.530	151.3	.632	
																300	7.66	34.10		26.638	141.0	.708	
																400	6.38	34.11		26.823	123.5	.845	
																500	5.73	34.19		26.968	109.7	.968	
																600	5.28	34.28		27.094	97.8	1.078	

RV ALEXANDER AGASSIZ BUOY BOUNCE EXPEDITION STD 2

LATITUDE				LONGITUDE				MO/DAY/YR				MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 06.5N				125 32.0W				09/13/66				1510											
Z	T	S	OZ	P04	S103	N02	N03	DT								Z	T	S	OZ	SIGT	DT	DD	
																0	18.05	33.12		23.843	406.9	0	
																10	18.05	33.12		23.843	406.9	.041	
																20	18.07	33.13		23.846	406.7	.081	
																30	17.95	33.15		23.890	402.4	.122	
																50	14.20	33.06		24.668	328.2	.195	
																75	11.62	33.03		25.152	282.2	.272	
																100	11.05	33.24		25.418	256.9	.340	
																125	9.92	33.51		25.824	218.3	.400	
																150	9.44	33.76		26.098	192.3	.452	
																200	8.64	33.98		26.397	163.9	.542	
																250	8.15	34.08		26.550	149.3	.623	
																300	7.59	34.10		26.648	140.0	.697	
																400	6.23	34.12		26.850	120.9	.833	
																500	5.75	34.20		26.974	109.2	.954	
																600	5.10	34.26		27.099	97.3	1.064	

RV ALEXANDER AGASSIZ BUOY BOUNCE EXPEDITION STD 3

LATITUDE				LONGITUDE				MO/DAY/YR				MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 06.8N				125 25.0W				09/13/66				2115				4884M	340	16KT	1	330 06 05			
Z	T	S	OZ	P04	S103	N02	N03	DT								Z	T	S	OZ	SIGT	DT	DD	
																0	18.27	33.12		23.789	412.1	0	
																10	18.21	33.12		23.804	410.7	.041	
																20	18.14	33.13		23.828	408.3	.082	
																30	18.14	33.13		23.828	408.3	.123	
																50	14.80	33.04		24.526	341.8	.198	
																75	12.75	33.18		25.054	291.5	.278	
																100	10.73	33.03		25.311	267.0	.348	
																125	10.05	33.33		25.662	233.7	.411	
																150	9.49	33.68		26.027	199.0	.466	
																200	8.78	33.97		26.367	166.7	.559	
																250	8.34	34.06		26.506	153.6	.641	
																300	7.71	34.09		26.623	142.4	.718	
																400	6.40	34.10		26.812	124.5	.856	
																500	5.79	34.18		26.953	111.1	.980	
																600	5.29	34.26		27.077	99.4	1.092	

RV ALEXANDER AGASSIZ BUOY BOUNCE EXPEDITION STD 4

LATITUDE				LONGITUDE				MO/DAY/YR				MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 08.0N				125 30.2W				09/14/66				0312				4650M	330	19KT	1	330 05			
Z	T	S	OZ	P04	S103	N02	N03	DT								Z	T	S	OZ	SIGT	DT	DD	
																0	18.21	33.13		23.811	409.9	0	
																10	18.21	33.14		23.819	409.2	.041	
																20	18.11	33.17		23.866	404.7	.082	
																30	18.01	33.17		23.891	402.4	.122	
																50	15.10	33.07		24.485	345.8	.197	
																75	12.22	33.02		25.032	293.6	.278	
																100	11.17	33.24		25.397	258.9	.347	
																125	10.09	33.45		25.748	225.5	.408	
																150	9.52	33.72		26.054	196.5	.462	
																200	8.68	33.98		26.391	164.5	.554	
																250	8.12	34.07		26.547	149.7	.634	
																300	7.49	34.11		26.671	137.9	.708	
																400	6.32	34.12		26.838	122.0	.843	
																500	5.70	34.20		26.980	108.6	.965	
																600	5.18	34.26		27.090	98.2	1.075	

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 5

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
34 02.8N		125 29.5W		09/14/66		0650		4650M		350		13KT				340 05 06	
Z	T	S	OZ	PO4	SI03	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD		
0	18.12	33.10							0	18.12	33.10		23.810	410.0	0		
10	18.14	33.10							10	18.14	33.10		23.806	410.5	.041		
20	18.12	33.11							20	18.12	33.11		23.818	409.3	.082		
30	18.06	33.16							30	18.06	33.16		23.871	404.3	.123		
50	15.63	33.06							50	15.63	33.06		24.361	357.6	.199		
75	12.62	33.00							75	12.62	33.00		24.940	302.4	.282		
100	10.80	32.99							100	10.80	32.99		25.268	271.2	.354		
125	10.22	33.35							125	10.22	33.35		25.648	235.0	.418		
150	9.78	33.64							150	9.78	33.64		25.948	206.5	.474		
200	8.77	33.96							200	8.77	33.96		26.361	167.3	.569		
250	8.13	34.06							250	8.13	34.06		26.538	150.5	.651		
300	7.54	34.09							300	7.54	34.09		26.648	140.1	.726		
400	6.32	34.10							400	6.32	34.10		26.823	123.5	.863		
500	5.66	34.18							500	5.66	34.18		26.969	109.6	.985		
600	5.18	34.26							600	5.18	34.26		27.090	98.2	1.095		

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

H 1

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
34 05.8N		125 27.0W		09/14/66		0840		4650M		350		13KT		1		340 05 06	
Z	T	S	OZ	PO4	SI03	NO2	NO3	NH4	CHLA	PHAE							
0	18.14	33.109	5.42	.38					.06	.07							
10	18.13	33.107	5.53	.41					.03	.20							
35	17.79	33.149	5.67	.38					.04	.08							
44	15.60	33.083	6.14	.39					.05	.13							
59	13.78	33.027	6.25	.46					.30	.00							
74	12.14		6.04	.66					.23	.07							
98	10.71		5.68	.96					.11	.04							
118	10.28		4.83	2.09U					.06	.07							
138	9.95		4.01	1.69					.02	.02							
167	9.31		3.40	1.92					.06	.23U							
197	8.82		2.88	2.11					.03	.23U							
236	8.27		2.65	2.36					.00	.02							
266	7.94		2.03	2.50					.00	.01							
315	7.36		1.60	2.71					.00	.01							
379	6.50		1.40	2.96					.00	.01							
478	5.80		.71	3.23					.00	.01							
567	5.44	34.243	.18	3.36													
640	4.90		.35	3.42													

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 6

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
34 03.5N		125 29.5W		09/14/66		1045		4650M		340		16KT		1		340 05 06	
Z	T	S	OZ	PO4	SI03	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD		
0	18.05	33.11							0	18.05	33.11		23.835	407.7	0		
10	18.07	33.12							10	18.07	33.12		23.838	407.4	.041		
20	17.71	33.11							20	17.71	33.11		23.918	399.8	.081		
30	16.36	33.00							30	16.36	33.00		24.150	377.6	.120		
50	13.64	32.96							50	13.64	32.96		24.707	324.6	.191		
75	11.67	33.02							75	11.67	33.02		25.135	283.8	.267		
100	10.75	33.19							100	10.75	33.19		25.432	255.5	.335		
125	10.07	33.41							125	10.07	33.41		25.720	228.1	.396		
150	9.43	33.71							150	9.43	33.71		26.060	195.8	.450		
200	8.63	33.98							200	8.63	33.98		26.399	163.7	.541		
250	8.03	34.07							250	8.03	34.07		26.560	148.4	.621		
300	7.46	34.08							300	7.46	34.08		26.651	139.7	.695		
400	6.17	34.09							400	6.17	34.09		26.834	122.4	.832		
500	5.62	34.19							500	5.62	34.19		26.982	108.4	.953		
600	5.20	34.27							600	5.20	34.27		27.095	97.6	1.062		

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 7

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
34 02.8N		125 29.5W		09/14/66		1234		4650M		350		13KT		1		340 05 06	
Z	T	S	OZ	PO4	SI03	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD		
0	18.07	33.14							0	18.07	33.14		23.853	405.9	0		
10	18.07	33.15							10	18.07	33.15		23.861	405.2	.041		
20	18.09	33.15							20	18.09	33.15		23.856	405.7	.081		
30	17.48	33.08							30	17.48	33.08		23.950	396.7	.121		
50	14.42	33.02							50	14.42	33.02		24.592	335.6	.195		
75	12.12	33.07							75	12.12	33.07		25.090	288.1	.273		
100	11.05	33.18							100	11.05	33.18		25.371	261.3	.362		
125	10.01	33.43							125	10.01	33.43		25.746	225.7	.404		
150	9.43	33.72							150	9.43	33.72		26.068	195.1	.457		
200	8.61	33.97							200	8.61	33.97		26.394	164.2	.549		
250	8.02	34.07							250	8.02	34.07		26.562	148.2	.629		
300	7.60	34.09							300	7.60	34.09		26.639	140.9	.703		
400	6.31	34.08							400	6.31	34.08		26.808	124.9	.841		
500	5.67	34.18							500	5.67	34.18		26.968	109.7	.964		
600	5.22	34.26							600	5.22	34.26		27.085	98.6	1.075		

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 8

LATITUDE 34 02.8N			LONGITUDE 125 29.5W		MO/DAY/YR 09/14/66		MESSENGER TIME 1530 GMT			BOTTOM 4673M	WIND 340	SPEED 12KT	WEATHER 1	DOMINANT WAVES 340 05		
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
									0	18.02	33.15		23.873	404.1	0	
									10	18.03	33.15		23.871	404.3	.040	
									20	18.02	33.15		23.873	404.1	.081	
									30	17.66	33.15		23.960	395.8	.121	
									50	14.18	32.98		24.611	333.7	.194	
									75	12.18	32.96		24.993	297.3	.273	
									100	10.85	33.17		25.399	258.7	.343	
									125	9.97	33.48		25.792	221.4	.404	
									150	9.60	33.70		26.025	199.2	.457	
									200	8.71	33.96		26.371	166.4	.550	
									250	8.24	34.06		26.521	152.1	.632	
									300	7.58	34.08		26.634	141.4	.708	
									400	6.32	34.11		26.830	122.8	.845	
									500	5.72	34.18		26.962	110.3	.967	
									600	5.24	34.26		27.083	98.8	1.079	

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 9

LATITUDE 34 02.8N			LONGITUDE 125 29.5W		MO/DAY/YR 09/14/66		MESSENGER 1826		TIME GMT	BOTTOM 4688M	WIND 010	SPEED 12KT	WEATHER 1	DOMINANT WAVES 340 04		
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
									0	18.15	33.15		23.841	407.1	0	
									10	18.11	33.15		23.851	406.2	.041	
									20	18.10	33.15		23.853	405.9	.081	
									30	18.08	33.16		23.866	404.7	.122	
									50	14.94	33.02		24.481	346.1	.197	
									75	12.44	32.91		24.905	305.7	.279	
									100	11.31	33.09		25.255	272.4	.352	
									125	10.15	33.37		25.676	232.4	.416	
									150	9.73	33.67		25.980	203.5	.471	
									200	8.72	33.95		26.361	167.3	.565	
									250	8.24	34.06		26.521	152.1	.647	
									300	7.65	34.09		26.632	141.6	.723	
									400	6.28	34.08		26.812	124.5	.861	
									500	5.72	34.18		26.962	110.3	.984	
									600	5.22	34.26		27.085	98.6	1.095	

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

H 2

	LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES	
	34 00.9N		125 28.8W		09/14/66		2153 GMT		4669M	360	10KT	1	340 06 06	
Z	T	S	OZ	PC4	S103	NO2	NO3	NH4	CHLA	PHAE				
0	18.40	33.156	5.58	.39					.04	.02				
10	18.15	33.152	5.60	.45					.05	.00				
29	18.10	33.153	5.62	.39					.05	.01				
39	16.72	32.952	5.90	.41					.09	.01				
53	14.40	33.004	6.26	.42					.17	.00				
67	13.02		6.25	.55					.40	.06				
90	11.49		5.73	.87					.14	.06				
109	10.80		5.24	1.61U					.05	.04				
127	9.98		5.05	1.18					.05	.05				
146	9.61		3.98	1.71										
174	9.02		3.20	2.03										
208	8.52		3.07	2.10					.01	.04				
236	8.13		2.74	2.23					.00	.01				
283	7.74		1.84	2.61					.00	.03				
336	6.84		1.85U	2.70					.00	.01				
418	6.18		1.00	3.05					.00	.02				
500	5.62	34.187	.56	3.29										
584	5.18	34.259	.36	3.36										

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 10

LATITUDE 34 00.9N			LONGITUDE 125 28.8W		MO/DAY/YR 09/14/66		MESSENGER TIME 2222		BOTTOM 4669M	WIND 360	SPEED 10KT	WEATHER	DOMINANT WAVES 340 06 06		
Z	T	S	OZ	PO4	SIO3	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.43	33.16		23.780	412.9	0
									10	18.14	33.15		23.844	406.9	.041
									20	18.11	33.16		23.859	405.4	.082
									30	18.07	33.15		23.861	405.2	.122
									50	14.75	32.98		24.491	345.2	.198
									75	12.65	32.99		24.927	303.7	.279
									100	11.27	33.15		25.309	267.3	.351
									125	10.30	33.33		25.619	237.8	.415
									150	9.68	33.65		25.973	204.2	.471
									200	8.73	33.95		26.360	167.4	.565
									250	8.08	34.03		26.522	152.1	.647
									300	7.56	34.10		26.653	139.6	.722
									400	6.40	34.10		26.812	124.5	.860
									500	5.72	34.18		26.962	110.3	.983
									600	5.14	34.26		27.095	97.7	1.093

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 11

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 02.8N		125 29.5W		09/15/66		0226		4669M	190	10KT	1				
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.27	33.14		23.804	410.6	0
									10	18.27	33.15		23.812	409.9	.041
									20	18.13	33.15		23.846	406.6	.082
									30	18.09	33.16		23.864	405.0	.123
									50	15.15	33.07		24.474	346.8	.198
									75	12.22	33.04		25.048	292.1	.278
									100	11.13	33.18		25.357	267.7	.348
									125	10.10	33.39		25.700	230.1	.410
									150	9.63	33.70		26.020	199.7	.465
									200	8.86	33.96		26.347	168.6	.558
									250	8.27	34.06		26.516	152.5	.641
									300	7.61	34.10		26.645	140.3	.716
									400	6.32	34.10		26.823	123.5	.853
									500	5.73	34.18		26.960	110.4	.976
									600	5.30	34.26		27.076	99.5	1.088

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 12

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DJHIVANT WAVES			
34 02.8N		125 29.5W		09/15/66		0319		4658M	360	14KT	0	340 05			
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.23	33.11		23.791	411.9	0
									10	18.23	33.12		23.799	411.1	.041
									20	18.06	33.14		23.856	405.7	.082
									30	18.04	33.14		23.860	405.3	.123
									50	15.33	33.08		24.442	349.8	.198
									75	12.35	33.02		25.007	296.0	.280
									100	10.87	33.14		25.372	261.2	.350
									125	10.05	33.41		25.724	227.8	.411
									150	9.62	33.69		26.014	200.3	.466
									200	8.81	33.94		26.339	169.4	.560
									250	8.32	34.05		26.501	154.0	.643
									300	7.83	34.09		26.606	144.1	.719
									400	6.44	34.10		26.807	125.0	.859
									500	5.70	34.18		26.964	110.1	.983
									600	5.18	34.26		27.090	98.2	1.094

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 13

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 02.8N		125 29.5W		09/15/66		0626		GMT	4650M	350	19KT	0	340 03 06		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.14	33.12		23.821	409.0	0
									10	18.11	33.12		23.828	408.3	.041
									20	18.04	33.12		23.845	406.7	.082
									30	17.91	33.12		23.877	403.7	.122
									50	14.65	33.05		24.566	338.0	.197
									75	12.35	33.01		25.000	296.7	.276
									100	10.92	33.13		25.356	262.8	.347
									125	10.05	33.36		25.685	231.5	.409
									150	9.66	33.67		25.992	202.4	.464
									200	8.83	33.96		26.352	168.2	.558
									250	8.22	34.06		26.524	151.8	.640
									300	7.42	34.08		26.657	139.2	.716
									400	6.24	34.11		26.841	121.8	.851
									500	5.57	34.19		26.988	107.8	.972
									600	5.12	34.27		27.105	96.7	1.081

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

H 3

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 04.8N		125 25.7W		09/15/66		0809		4669M	350	15KT	0	340 05 06		
Z	T	S	OZ	PO4	S103	NO2	NO3	NO4	CHLA	PHAE				
0	18.11	33.144	5.60	.37					.03	.01				
9	18.12	33.146	5.54	.38					.03	.02				
28	18.10	33.142	5.59	.37					.03	.00				
37	18.02	33.144	5.61	.37					.05	.00				
50	15.39	33.012	6.16	.40					.06	.02				
64	14.07		6.26	.42					.15	.14				
86	12.32		6.26	.55					.29	.14				
101	10.98		5.59	.98					.07	.03				
120	10.59		5.25	1.02					.06	.09				
138	9.86		4.31	1.52					.02	.02				
164	9.38		3.42	1.92					.00	.10				
196	8.82		3.06	2.02					.00	.05				
222	8.44		2.88	2.15					.00	.02				
267	8.06		2.03	2.49					.00	.12				
318	7.13		1.76	2.65										
397	6.31		1.23	2.95					.00	.01				
477	5.79		.68	3.16										
557	5.16		.42	3.35										

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 14

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 02.2N		125 27.6W		09/15/66		0933			4669M	340	17KT	1	340 05 06		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.09	33.12		23.833	407.9	0
									10	18.09	33.13		23.841	407.1	.041
									20	18.09	33.13		23.841	407.1	.082
									30	17.68	33.11		23.925	399.1	.122
									50	14.43	32.99		24.566	338.0	.196
									75	12.31	32.99		24.992	297.4	.276
									100	11.14	33.17		25.348	263.6	.346
									125	9.94	33.52		25.828	217.9	.407
									150	9.43	33.75		26.092	192.9	.459
									200	8.56	33.96		26.394	164.2	.550
									250	8.17	34.06		26.532	151.1	.631
									300	7.53	34.08		26.641	140.7	.706
									400	6.34	34.09		26.812	124.5	.844
									500	5.66	34.16		26.953	111.1	.968
									600	5.20	34.26		27.087	98.4	1.079

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 15

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 02.8N		125 29.5W		09/15/66		1531		GMT	4669M	330	12KT	1	340 03		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.07	33.14		23.853	405.9	0
									10	18.07	33.14		23.853	405.9	.041
									20	18.08	33.15		23.858	405.5	.081
									30	17.80	33.14		23.919	399.7	.122
									50	15.20	33.03		24.432	350.8	.197
									75	12.65	32.96		24.903	305.9	.279
									100	11.30	33.15		25.303	267.8	.352
									125	10.20	33.38		25.675	232.5	.415
									150	9.70	33.69		26.001	201.5	.470
									200	8.81	33.93		26.331	170.1	.564
									250	8.33	34.05		26.500	154.2	.647
									300	7.73	34.09		26.620	142.7	.724
									400	6.37	34.11		26.824	123.4	.862
									500	5.68	34.19		26.974	109.1	.984
									600	5.21	34.26		27.086	98.5	1.095

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 16

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 02.8N		125 29.5W		09/15/66		1830		GMT		340	19KT	1	340 04 06		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.13	33.16		23.854	405.9	0
									10	18.12	33.16		23.856	405.7	.041
									20	18.11	33.16		23.859	405.4	.081
									30	18.09	33.16		23.864	405.0	.122
									50	16.12	32.98		24.189	373.9	.200
									75	13.45	32.98		24.761	319.5	.287
									100	11.60	33.13		25.233	274.5	.362
									125	10.48	33.30		25.565	242.9	.427
									150	9.81	33.60		25.912	209.9	.484
									200	8.77	33.93		26.338	169.5	.581
									250	8.24	34.05		26.513	152.9	.663
									300	7.63	34.09		26.635	141.3	.739
									400	6.32	34.11		26.830	122.8	.877
									500	5.60	34.19		26.984	108.2	.998
									600	5.10	34.28		27.115	95.8	1.106

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

H 4

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES	
34 00.7N		125 28.8W		09/15/66		2038		4673M	330	14KT	1	350 06 06	
Z	T	S	OZ	PO4	S103	NO2	NO3	NO4	CHLA	PHAE			
1	18.22	33.153	5.57	.35					.01	.02			
10	18.21	33.153	5.55	.35					.03	.01			
26	18.12	33.149	5.82	.35					.04	.01			
35	17.70	33.089	5.74	.36					.06	.01			
48	15.20	32.964	6.21	.40					.15	.02			
59	14.61		6.27	.40					.28	.12			
79	12.80		6.19	.55					.32	.12			
95	11.90		5.94	.66					.12	.13			
109	11.12		5.61	.87					.10	.04			
124	10.32		4.82	1.29					.04	.04			
145	9.83		4.56	1.35					.02	.04			
171	9.25		3.46	1.91					.01	.02			
194	8.90		3.11	2.03					.00	.02			
232	8.27		2.95	2.14					.00	.02			
277	7.96		1.99	2.51					.00	.02			
348	6.84		1.83	2.66					.00	.01			
422	6.18		1.04	2.99									
500	5.62		.72	3.22									

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 17

LATITUDE 34 04.3N			LONGITUDE 125 27.0W		MO/DAY/YR 09/15/66		MESSENGER TIME 2135			BOTTOM		WIND 330		SPEED 14KT		WEATHER		DOMINANT WAVES 350 06 06		
Z	T	S	02	P04	S103	N02	N03	DT		Z	T	S	02	SIGT	DT	DD				
										0	18.23	33.15		23.822	409.0	0				
										10	18.15	33.14		23.834	407.8	.041				
										20	18.10	33.15		23.853	405.9	.082				
										30	17.83	33.08		23.866	404.8	.122				
										50	15.15	33.00		24.420	351.9	.198				
										75	12.32	32.95		24.959	300.6	.280				
										100	11.29	33.09		25.259	272.1	.352				
										125	10.30	33.33		25.619	237.8	.416				
										150	9.65	33.70		26.017	200.0	.472				
										200	8.75	33.95		26.357	167.7	.565				
										250	8.16	34.06		26.533	151.0	.647				
										300	7.50	34.08		26.646	140.3	.722				
										400	6.37	34.10		26.816	124.1	.860				
										500	5.70	34.18		26.964	110.1	.983				
										600	5.25	34.25		27.074	99.7	1.094				

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 18

LATITUDE 34 02.3N			LONGITUDE 125 29.5W		MO/DAY/YR 09/16/66		MESSENGER TIME 0212			BOTTOM 4669M		WIND 340		SPEED 14KT		WEATHER 1		DOMINANT WAVES 340 04		
Z	T	S	02	P04	S103	N02	N03	DT		Z	T	S	02	SIGT	DT	DD				
										0	18.22	33.12		23.801	410.9	0				
										10	18.19	33.13		23.816	409.5	.041				
										20	18.12	33.14		23.841	407.1	.082				
										30	17.90	33.13		23.887	402.7	.122				
										50	14.40	33.02		24.596	335.2	.196				
										75	12.39	33.02		25.000	296.7	.276				
										100	11.05	33.15		25.348	263.5	.346				
										125	10.19	33.35		25.633	234.5	.409				
										150	9.64	33.68		26.003	201.3	.464				
										200	8.68	33.95		26.367	166.7	.558				
										250	8.14	34.05		26.528	151.4	.640				
										300	7.60	34.09		26.639	140.9	.715				
										400	6.25	34.11		26.839	121.9	.852				
										500	5.65	34.18		26.970	109.5	.973				
										600	5.20	34.26		27.087	98.4	1.084				

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 19

LATITUDE 34 02.8N			LONGITUDE 125 29.5W		MO/DAY/YR 09/16/66		MESSENGER TIME 0327			BOTTOM 4669M		WIND 340		SPEED 18KT		WEATHER 0		DOMINANT WAVES 340 03		
Z	T	S	02	P04	S103	N02	N03	DT		Z	T	S	02	SIGT	DT	DD				
										0	18.18	33.12		23.811	410.0	0				
										10	18.18	33.13		23.819	409.2	.041				
										20	18.14	33.13		23.828	408.3	.082				
										30	17.25	33.11		24.027	389.3	.122				
										50	15.00	33.03		24.475	346.6	.196				
										75	12.56	32.99		24.944	302.0	.277				
										100	11.25	33.17		25.328	265.5	.349				
										125	10.24	33.37		25.660	233.8	.412				
										150	9.58	33.70		26.028	198.9	.466				
										200	8.83	33.94		26.336	169.7	.560				
										250	8.24	34.05		26.513	152.9	.643				
										300	7.60	34.08		26.631	141.7	.719				
										400	6.35	34.11		26.826	123.1	.856				
										500	5.60	34.20		26.992	107.4	.978				
										600	5.14	34.27		27.102	97.0	1.086				

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 20

LATITUDE 34 02.5N			LONGITUDE 125 29.5W		MO/DAY/YR 09/16/66		MESSENGER TIME 1805			BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES		
Z	T	S	02	P04	S103	N02	N03	DT		Z	T	S	02	SIGT	DT	DD				
										0	18.05	33.07		23.805	410.6	0				
										10	18.05	33.07		23.805	410.6	.041				
										20	18.05	33.07		23.805	410.6	.082				
										30	17.50	33.04		23.914	400.1	.123				
										50	16.15	32.99		24.190	373.8	.200				
										75	12.55	32.98		24.938	302.6	.285				
										100	11.68	33.23		25.296	268.5	.357				
										125	10.15	33.29		25.614	238.3	.421				
										150	9.63	33.67		25.997	201.9	.477				
										200	8.84	33.95		26.342	169.1	.571				
										250	8.09	34.02		26.512	152.9	.654				
										300	7.60	34.09		26.639	140.9	.730				
										400	6.25	34.10		26.832	122.6	.867				
										500	5.62	34.17		26.966	109.9	.989				
										600	5.16	34.26		27.092	97.9	1.099				

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 21

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 02.6N		125 29.5W		09/16/66		2028		4669M	360	15KT	2	350 07 06			
Z	T	S	O2	PD4	SI03	NO2	NO3	DT	Z	T	S	O2	SI07	DT	DD
									0	18.10	33.13		23.838	407.4	0
									10	18.09	33.13		23.841	407.1	.041
									20	18.08	33.13		23.843	406.9	.081
									30	18.06	33.12		23.840	407.2	.122
									50	15.82	32.99		24.264	366.7	.200
									75	13.15	33.02		24.852	310.8	.285
									100	11.89	33.14		25.187	276.9	.359
									125	10.02	33.22		25.581	241.4	.425
									150	9.83	33.57		25.885	212.5	.482
									200	8.87	33.95		26.338	169.5	.579
									250	8.17	34.04		26.516	152.6	.662
									300	7.65	34.10		26.640	140.9	.738

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

H 5

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 02.6N		125 29.5W		09/16/66		2104 2120 GMT		4669M	360	15KT	2	350 07 06		
Z	T	S	O2	PD4	SI03	NO2	NO3	NH4	CHLA	PHAE				
0A	18.10	33.066	5.62	.37					.05	.00				
10	18.08	33.067	5.60	.36					.04	.01				
25	18.09	33.112	5.64	.34					.06	.00				
39	17.22	33.022	5.80	.35					.08	.01				
49	15.76	33.009	6.12	.37					.12	.02				
59	14.72		6.30	.37					.12	.05				
64	14.24		6.31	.38					.17	.01				
67	14.20		6.35	.38					.24	.03				
70	14.00		6.32	.42					.37	.00				
73	13.40		6.24	.50					.40	.07				
76	13.28		6.20	.57					.39	.10				
77B	12.87		6.32	.43					.27	.12				
81B	12.33		6.25	.46					.27	.06				
86B	12.18		6.20	.50					.23	.03				
97B	11.92		5.96	.59					.16	.06				
110B	11.38		5.58	.74					.10	.03				
131B	10.00		4.62	1.43					.03	.03				
150B	9.68		4.44	1.45					.03	.02				

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 22

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 03.0N		125 29.0W		09/17/66		0342		GHT	4688M	330	15KT	0	350 03		
Z	T	S	O2	PD4	SI03	NO2	NO3	DT	Z	T	S	O2	SI07	DT	DD
									0	18.09	33.03		23.764	414.4	0
									10	18.09	33.04		23.772	413.7	.041
									20	18.09	33.04		23.772	413.7	.083
									30	17.25	33.05		23.981	393.7	.123
									50	14.20	32.99		24.615	333.4	.196
									75	12.18	33.03		25.047	292.2	.275
									100	11.63	33.24		25.313	266.9	.345
									125	10.00	33.29		25.639	235.9	.409
									150	9.63	33.67		25.997	201.9	.464
									200	8.90	33.94		26.325	170.7	.559
									250	8.17	34.03		26.508	153.3	.642
									300	7.65	34.09		26.632	141.6	.718
									400	6.36	34.10		26.817	124.0	.856
									500	5.62	34.17		26.966	109.9	.979
									600	5.24	34.26		27.083	98.8	1.090

A1 SPECIAL CAST TO STUDY THE OXYGEN AND CHLOROPHYLL MAXIMA.
B1 CAST II.

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

M 6

Z	LATITUDE		LONGITUDE	MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES
	34 04.0N	5			09/17/66	0831	GMT					340 06 07
Z	T	S	OZ	P04	S103	N02	N03	NH4	CHLA	PHAF		
0	18.13	33.059	5.62	.37					.05	.01		
10	18.14	33.058	5.60	.35					.05	.00		
34	17.66	33.036	5.74	.35					.05	.01		
43	16.48	33.043	6.00	.34					.08	.02		
57	14.44	32.989	6.24	.35					.09	.02		
71	12.86		6.34	.44					.22	.09		
94	11.88		5.95	.57					.13	.08		
112	10.88		5.37	.94					.06	.05		
130	10.02		4.59	1.40					.03	.03		
158	9.47		4.19	1.55					.02	.02		
185	8.98		3.15	1.97					.00	.01		
221	8.48		2.97	2.09					.00	.01		
249	8.17		2.53	2.25					.00	.01		
294	7.43		1.90	2.58					.00	.01		
354	6.60		1.74	2.69					.00	.01		
448	5.88		.78	3.10					.00	.01		
535	5.35		.42	3.26								
610	5.02		.35	3.35								

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 23

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 04.0N		125 28.5W		09/17/66		0937		GMT	4669M	350	15KT	5	340 06 07		
Z	T	S	OZ	P04	S103	N02	N03	DT	Z	T	S	OZ	SIGT	DT	DD
	0	18.13	33.07						0	18.13	33.07		23.785	412.4	0
	10	18.13	33.07						10	18.13	33.07		23.785	412.4	.041
	20	18.13	33.07						20	18.13	33.07		23.785	412.4	.083
	30	17.89	33.07						30	17.89	33.07		23.844	406.9	.124
	50	15.15	32.96						50	15.15	32.96		24.389	354.8	.200
	75	12.92	32.93						75	12.92	32.93		24.827	313.1	.284
	100	11.80	33.11						100	11.80	33.11		25.181	279.5	.358
	125	10.42	33.29						125	10.42	33.29		25.567	242.7	.424
	150	9.75	33.62						150	9.75	33.62		25.938	207.5	.481
	200	8.90	33.91						200	8.90	33.91		26.302	172.9	.578
	250	8.14	33.99						250	8.14	33.99		26.481	155.9	.662
	300	7.67	34.08						300	7.67	34.08		26.621	142.6	.739
	400	6.31	34.09						400	6.31	34.09		26.816	124.1	.878
	500	5.68	34.17						500	5.68	34.17		26.959	110.6	1.001
	600	5.22	34.25						600	5.22	34.25		27.077	99.4	1.113

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 24

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 04.0N		125 28.5W		09/17/66		1251		GMT	4574M	340	09KT				
Z	T	S	OZ	P04	S103	N02	N03	DT	Z	T	S	OZ	SIGT	DT	DD
	0	18.02	33.08						0	18.02	33.08		23.820	409.2	0
	10	18.02	33.08						10	18.02	33.08		23.820	409.2	.041
	20	18.02	33.08						20	18.02	33.08		23.820	409.2	.082
	30	18.02	33.08						30	18.02	33.08		23.820	409.2	.123
	50	14.35	33.01						50	14.35	33.01		24.556	338.9	.198
	75	12.84	32.95						75	12.84	32.95		24.859	310.1	.279
	100	11.55	33.10						100	11.55	33.10		25.219	275.8	.353
	125	10.42	33.29						125	10.42	33.29		25.567	242.7	.419
	150	9.78	33.61						150	9.78	33.61		25.925	208.7	.476
	200	8.75	33.95						200	8.75	33.95		26.357	167.7	.572
	250	8.22	34.05						250	8.22	34.05		26.516	152.6	.654
	300	7.65	34.09						300	7.65	34.09		26.632	141.6	.729
	400	6.41	34.10						400	6.41	34.10		26.811	124.6	.868
	500	5.65	34.17						500	5.65	34.17		26.962	110.2	.991
	600	5.23	34.25						600	5.23	34.25		27.076	99.5	1.103

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 25

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 03.0N		125 27.2W		09/18/66		0422		GMT	4665M	290	11KT				
Z	T	S	OZ	P04	S103	N02	N03	DT	Z	T	S	OZ	SIGT	DT	DD
	0	18.37	33.07						0	18.37	33.07		23.726	418.1	0
	10	18.36	33.07						10	18.36	33.07		23.729	417.8	.042
	20	18.30	33.08						20	18.30	33.08		23.751	415.7	.084
	30	17.45	33.02						30	17.45	33.02		23.911	400.4	.124
	50	14.78	33.02						50	14.78	33.02		24.515	342.8	.199
	75	12.43	32.99						75	12.43	32.99		24.969	299.6	.280
	100	11.50	33.17						100	11.50	33.17		25.282	269.8	.351
	125	10.20	33.31						125	10.20	33.31		25.621	237.6	.415
	150	9.99	33.68						150	9.99	33.68		26.011	200.5	.471
	200	8.80	33.94						200	8.80	33.94		26.341	169.2	.565
	250	8.28	34.04						250	8.28	34.04		26.499	154.2	.648
	300	7.69	34.09						300	7.69	34.09		26.626	142.1	.724
	400	6.39	34.10						400	6.39	34.10		26.813	124.4	.863
	500	5.70	34.18						500	5.70	34.18		26.964	110.1	.986
	600	5.25	34.26						600	5.25	34.26		27.082	98.9	1.097

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 26

LATITUDE 34 03.0N			LONGITUDE 125 27.0W			MO/DAY/YR 09/18/66		MESSENGER TIME 0706		BOTTOM 4669M		WIND 290		SPEED 12KT		WEATHER 2		DOMINANT WAVES 330 05 07		
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD					
	0	18.36	33.08						0	18.36	33.08			23.736	417.1	0				
	10	18.36	33.08						10	18.36	33.08			23.736	417.1	.042				
	20	18.29	33.07						20	18.29	33.07			23.746	416.2	.083				
	30	17.92	33.03						30	17.92	33.03			23.806	410.5	.125				
	50	15.31	32.96						50	15.31	32.96			24.354	398.2	.202				
	75	12.90A	32.97						75	12.90A	32.97			24.862	309.8	.286				
	100	11.45	33.12						100	11.45	33.12			25.293	272.6	.359				
	125	10.30	33.32						125	10.30	33.32			25.611	238.5	.424				
	150	9.73	33.62						150	9.73	33.62			25.941	207.2	.480				
	200	8.85	33.92						200	8.85	33.92			26.317	171.4	.576				
	250	8.15	34.00						250	8.15	34.00			26.688	155.3	.660				
	300	7.69	34.09						300	7.69	34.09			26.626	142.1	.737				
	400	6.35	34.10						400	6.35	34.10			26.819	123.9	.875				
	500	5.64	34.18						500	5.64	34.18			26.971	109.4	.998				
	600	5.21	34.26						600	5.21	34.26			27.086	98.5	1.108				

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

M 7

LATITUDE 34 03.0N			LONGITUDE 125 27.0W		MO/DAY/YR 09/18/66		MESSENGER TIME 0821 GMT		BOTTOM 4669M		WIND 290		SPEED 12KT		WEATHER 2		DOMINANT WAVES 330 05 07	
Z	T	S	02	P04	S103	N02	N03	NH4	CHLA	PHAE								
0	18.37	33.071	5.57	.36														
10	18.36	33.073	5.77	.37					.04	.00								
34	17.44	33.020	5.86	.37					.04	.00								
44	16.22	32.939	6.10	.37					.09	.01								
58	14.55	32.998	6.27	.37					.09	.02								
73	13.00		6.29	.53					.10	.02								
97	11.70		6.04	.61					.30	.10								
117	11.15		5.61	.77					.14	.06								
135	9.98		4.55	1.42					.07	.07								
164	9.30		3.84	1.77					.03	.02								
192	8.80		3.02	2.06					.01	.01								
231	8.30		2.80	2.18					.00	.01								
259	7.96		2.10	2.43					.00	.01								
307	7.20		1.86	2.61					.00	.01								
370	6.46		1.38	2.88					.00	.01								
465	5.70		.74	3.15					.00	.01								
556	5.30		.40	3.29					.00	.01								
631	4.94		.33	3.39					.00	.01								

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 27

LATITUDE 34 03.0N			LONGITUDE 125 26.1W			MO/DAY/YR 09/18/66		MESSENGER TIME 1025		BOTTOM 4669M		WIND 280		SPEED 10KT		WEATHER 5		DOMINANT WAVES 330 05 07		
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD					
	0	18.38	33.05						0	18.38	33.05			23.709	419.7	0				
	10	18.38	33.06						10	18.38	33.06			23.716	419.0	.042				
	20	18.31	33.06						20	18.31	33.06			23.733	417.4	.084				
	30	17.30	33.05						30	17.30	33.05			23.970	394.8	.125				
	50	14.90	32.99						50	14.90	32.99			24.466	347.5	.199				
	75	12.78	32.95						75	12.78	32.95			24.870	309.0	.281				
	100	11.50	33.11						100	11.50	33.11			25.236	274.2	.355				
	125	10.85	33.29						125	10.85	33.29			25.492	249.8	.421				
	150	9.72	33.62						150	9.72	33.62			25.943	207.0	.479				
	200	8.79	33.95						200	8.79	33.95			26.350	168.3	.574				
	250	8.18	34.04						250	8.18	34.04			26.514	152.7	.657				
	300	7.64	34.09						300	7.64	34.09			26.633	141.5	.732				
	400	6.26	34.10						400	6.26	34.10			26.830	122.8	.870				
	500	5.68	34.18						500	5.68	34.18			26.967	109.8	.992				
	600	5.21	34.26						600	5.21	34.26			27.086	98.5	1.103				

A) TEMPERATURE INFERRED BY COMPARISON WITH ADJACENT STATIONS.

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 28

LATITUDE 34 01.5N			LONGITUDE 125 28.5W			MO/DAY/YR 09/18/66		MESSENGER TIME 1403		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD	
									0	18.36	33.05		23.713	419.3	0	
									10	18.37	33.05		23.711	419.5	.042	
									20	18.30	33.06		23.736	417.1	.084	
									30	17.30	33.01		23.939	397.8	.125	
									50	15.42	32.97		24.338	359.7	.201	
									75	12.53	32.96		24.927	303.7	.284	
									100	11.49	33.11		25.238	274.0	.357	
									125	10.75	33.30		25.518	247.4	.422	
									150	9.85	33.54		25.859	215.0	.481	
									200	8.99	33.88		26.264	176.5	.581	
									250	8.20	34.00		26.480	156.0	.666	
									300	7.88	34.08		26.590	145.5	.743	
									400	6.53	34.09		26.787	126.9	.885	
									500	5.80	34.16		26.936	112.8	1.011	
									600	5.28	34.28		27.094	97.8	1.123	

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 29

LATITUDE 34 00.0N			LONGITUDE 125 27.4W			MO/DAY/YR 09/18/66		MESSENGER TIME 1703		BOTTOM 4665M	WIND 350	SPEED 19KT	WEATHER 2	DOMINANT WAVES 300 10		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD	
									0	18.38	33.06		23.716	419.0	0	
									10	18.38	33.06		23.716	419.0	.042	
									20	18.37	33.07		23.726	418.1	.084	
									30	18.32	33.06		23.731	417.6	.126	
									50	15.65	32.97		24.287	364.6	.204	
									75	12.70	32.96		24.894	306.8	.288	
									100	11.54	33.09		25.213	276.4	.362	
									125	10.54	33.32		25.570	242.4	.427	
									150	9.85	33.56		25.874	213.5	.485	
									200	8.83	33.93		26.328	170.4	.583	
									250	8.12	34.02		26.508	153.4	.666	
									300	7.64	34.07		26.618	142.9	.742	
									400	6.35	34.10		26.819	123.9	.881	
									500	5.68	34.18		26.967	109.8	1.003	
									600	5.19	34.26		27.089	98.3	1.114	

RV ALEXANDER AGASSIZ

BUOY BOUNCE EXPEDITION

STD 30

LATITUDE 33 58.5N			LONGITUDE 125 25.5W			MO/DAY/YR 09/18/66		MESSENGER TIME 1953		BOTTOM 4631M	WIND 330	SPEED 23KT	WEATHER 1	DOMINANT WAVES 330 10 07		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD	
									0	18.46	33.08		23.712	419.4	0	
									10	18.43	33.08		23.719	418.7	.042	
									20	18.42	33.08		23.722	418.5	.084	
									30	17.35	33.05		23.958	396.0	.125	
									50	14.65	32.98		24.512	343.1	.199	
									75	12.50A	33.00		24.963	300.2	.280	
									100	11.71	33.14		25.221	275.7	.352	
									125	10.10	33.42		25.723	227.9	.416	
									150	9.45	33.70		26.049	196.9	.469	
									200	8.55	33.96		26.395	164.0	.561	
									250	8.08	34.02		26.514	152.8	.642	
									300	7.70	34.08		26.617	143.0	.719	
									400	6.39	34.10		26.813	124.4	.858	
									500	5.57	34.18		26.980	108.6	.980	
									600	5.16	34.26		27.092	97.9	1.090	

A) TEMPERATURE INFERRED BY COMPARISON WITH ADJACENT STATIONS.

RV ALEXANDER AGASSIZ

BUDY BOUNCE EXPEDITION

M 8

LATITUDE 33 58.5N		LONGITUDE 125 25.5W		MO/DAY/YR 09/18/66	MESSENGER TIME 2042 GMT			BOTTOM 4631M	WIND 330	SPEED 23KT	WEATHER 1	DOMINANT WAVES 330 10 07		
Z	T	S	OZ	PO4	S103	NO2	NO3	NH4	CHLA	PHAE				
1	18.47	33.074	5.61	.35						.04	.00			
9	18.44	33.073	5.58	.37						.05	.00			
29	18.03	33.082	5.73	.36						.06	.00			
37	16.95	33.005	5.87	.36						.08	.00			
47	14.93	33.006	6.30	.38						.13	.02			
61	13.53		6.16	.43						.27	.05			
80	12.07		6.17	.47						.18	.09			
94	11.70		5.97	.59						.12	.07			
109	11.14		5.51	.82						.08	.05			
132	9.97		4.52	1.47						.02	.02			
153	9.57		4.40	1.46U										
181	8.94		3.16U	2.01U						.00	.01			
204	8.57		3.16	2.02						.00	.01			
241	8.05		2.77	2.20						.00	.01			
290	7.63		1.99	2.52						.00	.01			
370	6.50		1.50	2.82						.00	.01			
447	5.90		.99	3.03										
514	5.44		.56	3.23										

RV ALEXANDER AGASSIZ

BUDY BOUNCE EXPEDITION

STD 31

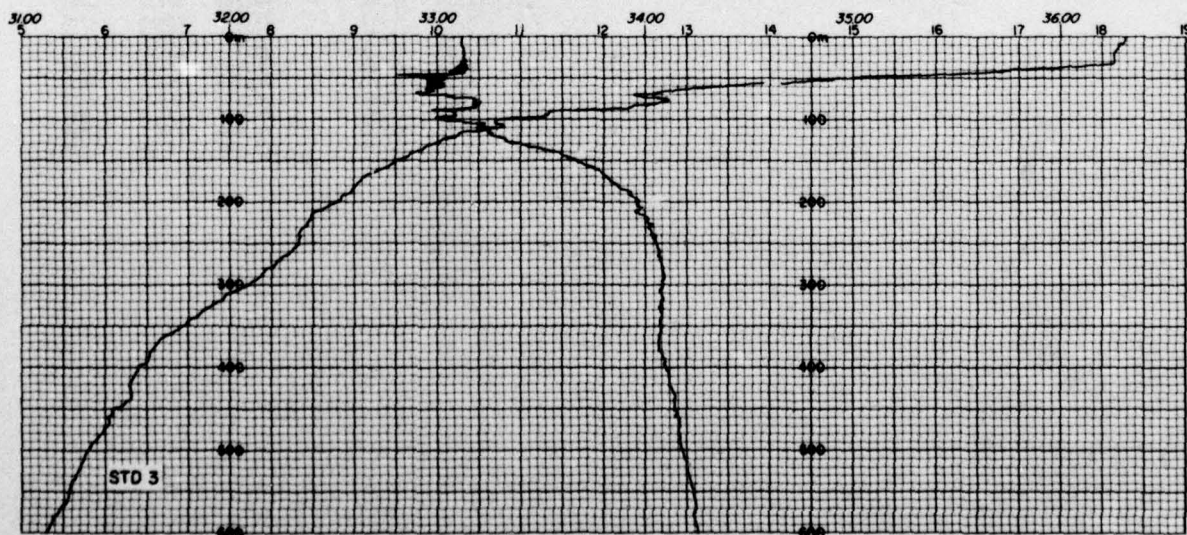
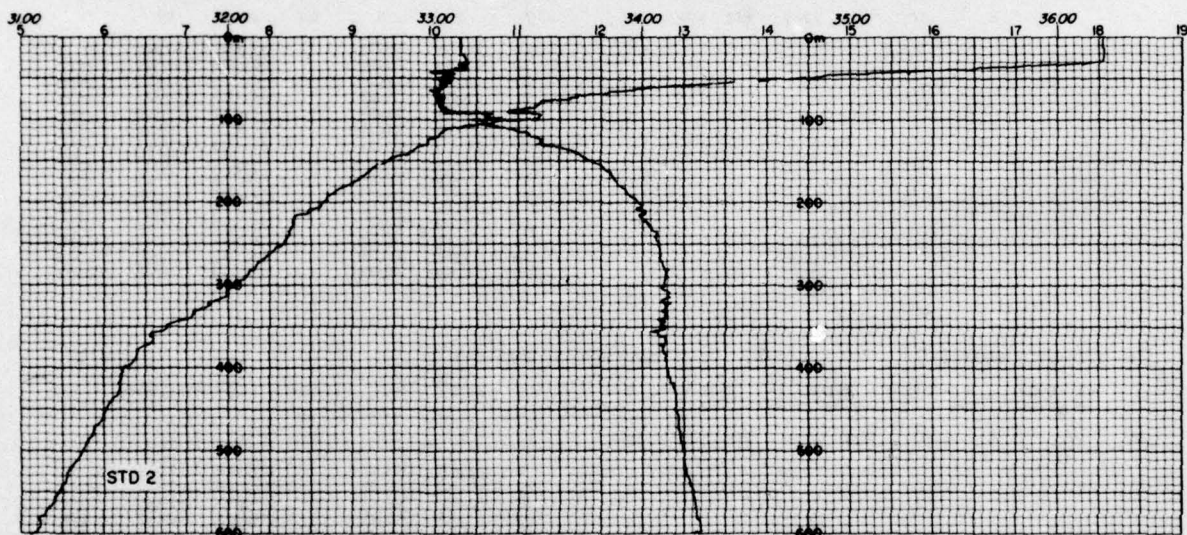
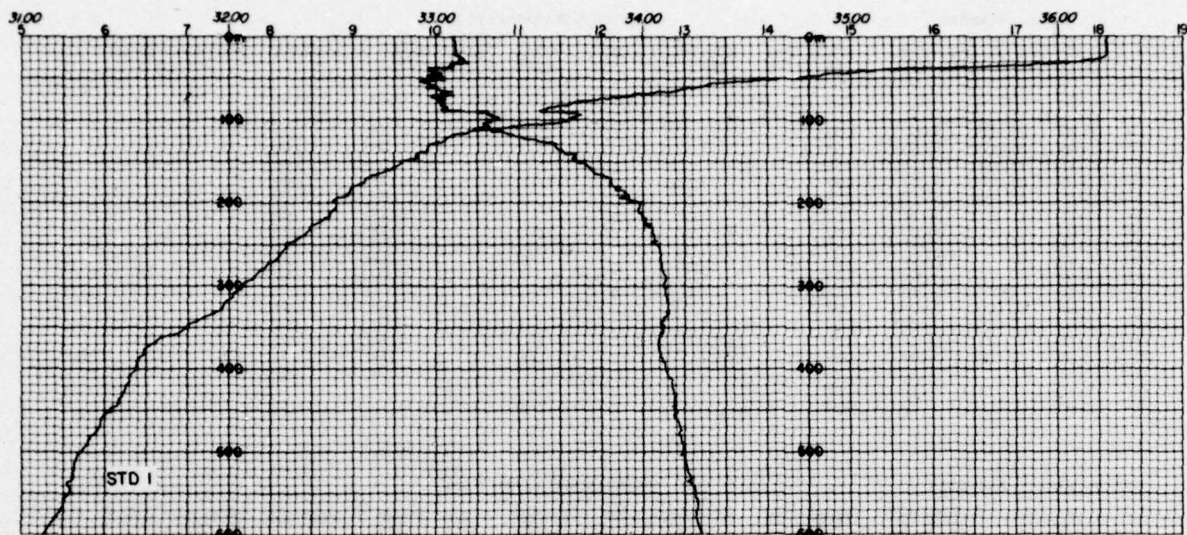
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Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
									0	18.54	33.09		23.699	420.6	0
									10	18.54	33.09		23.699	420.6	.042
									20	18.30	33.09		23.759	415.0	.084
									30	16.98	33.05		24.045	387.7	.124
									50	13.74	33.00		24.717	323.6	.195
									75	12.65	33.10		25.012	295.6	.273
									100	11.73	33.22		25.279	270.1	.344
									125	10.34	33.33		25.612	238.4	.409
									150	9.70	33.63		25.954	206.0	.465
									200	8.84	33.93		26.327	170.6	.561
									250	8.04	34.00		26.504	153.7	.644
									300	7.60	34.07		26.623	142.4	.720
									400	6.19	34.09		26.831	122.7	.858
									500	5.55	34.18		26.982	108.3	.979
									600	5.15	34.26		27.093	97.8	1.089

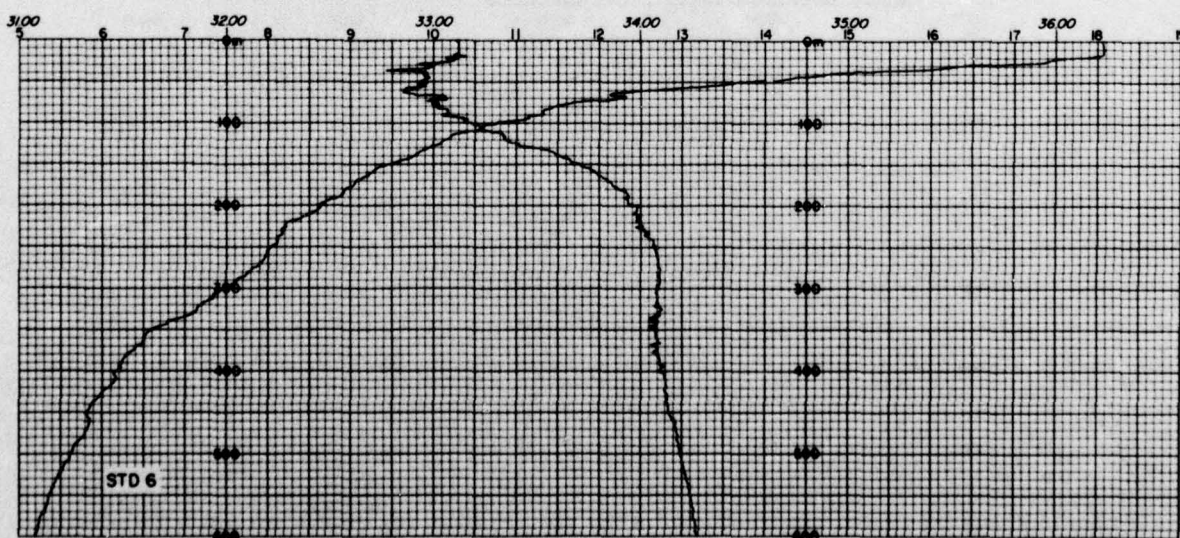
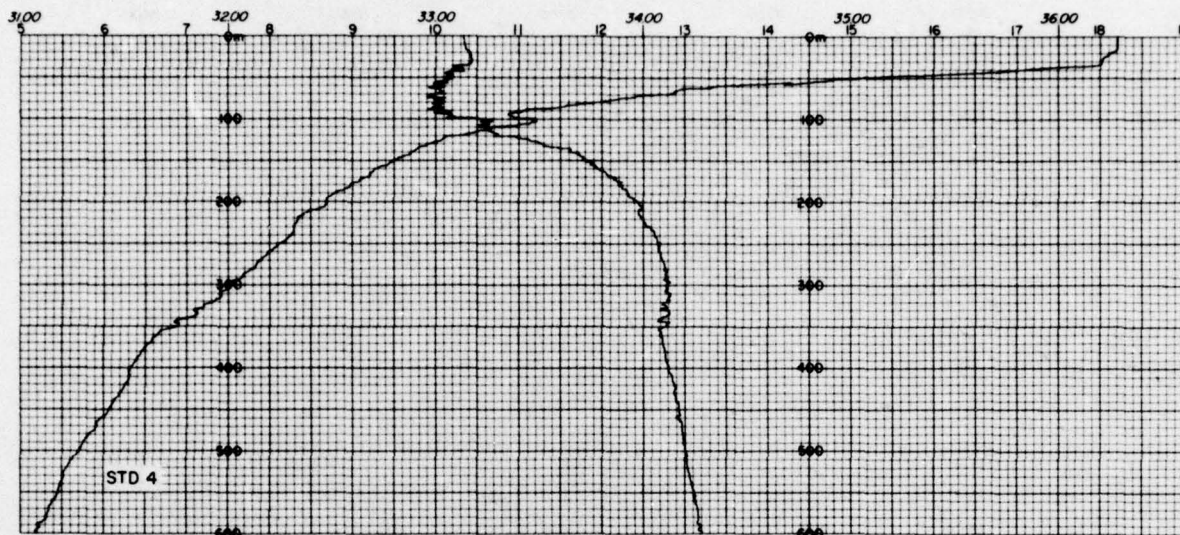
RV ALEXANDER AGASSIZ

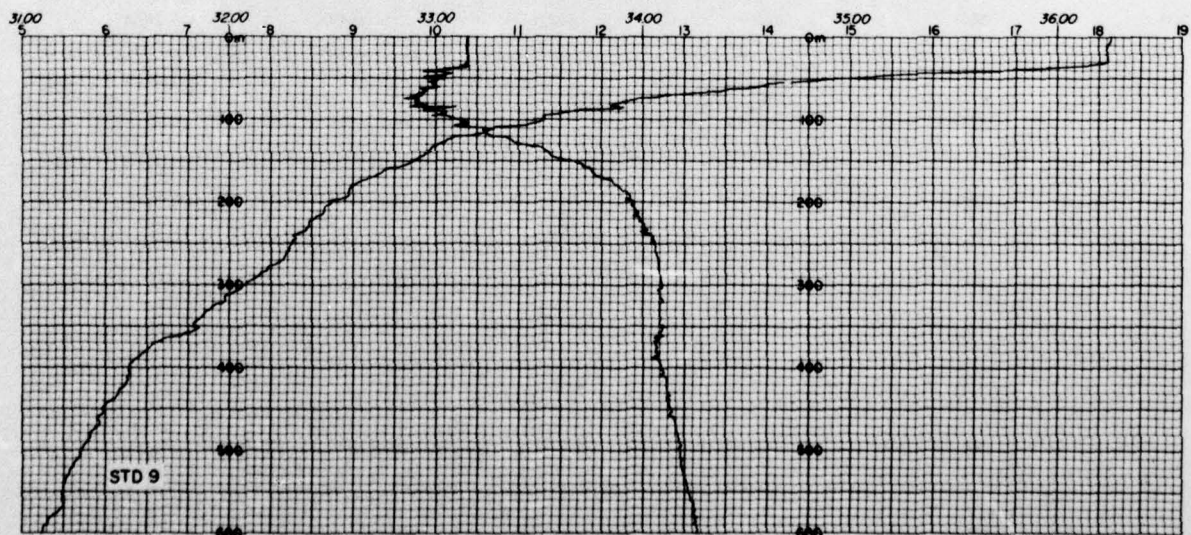
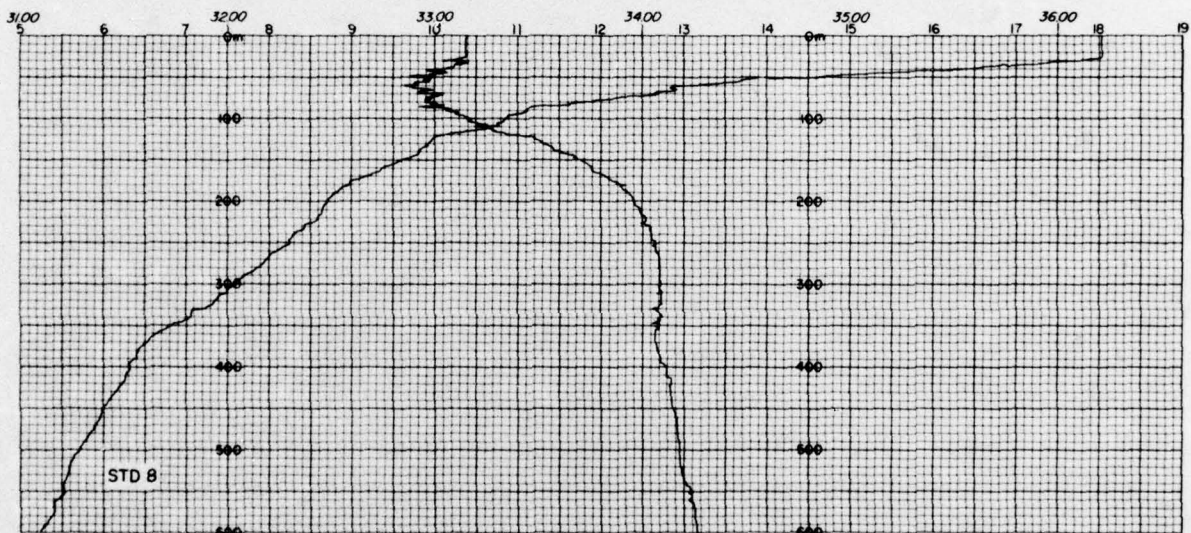
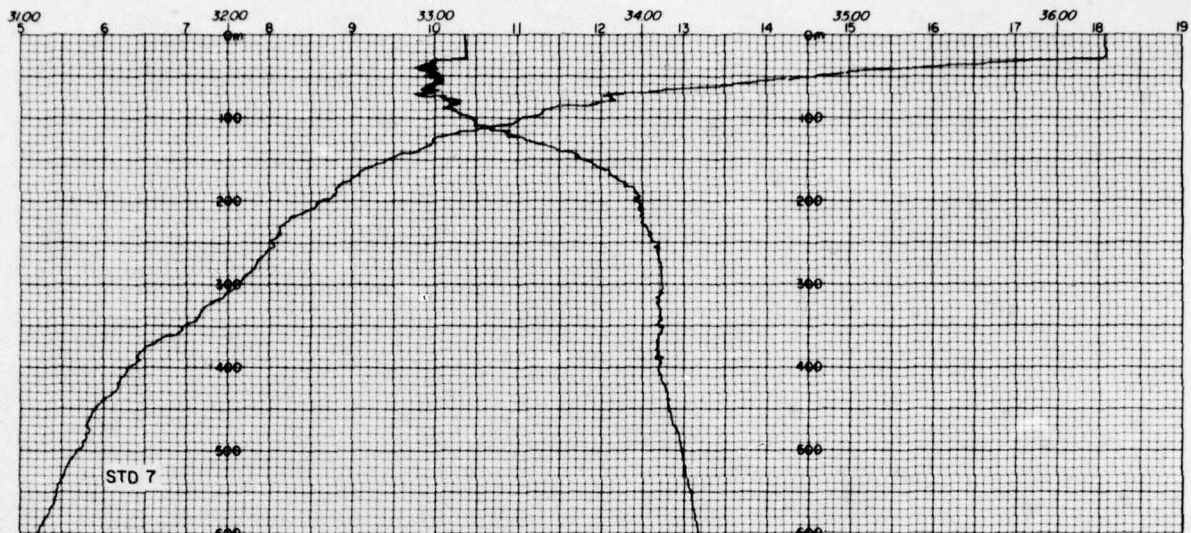
BUDY BOUNCE EXPEDITION

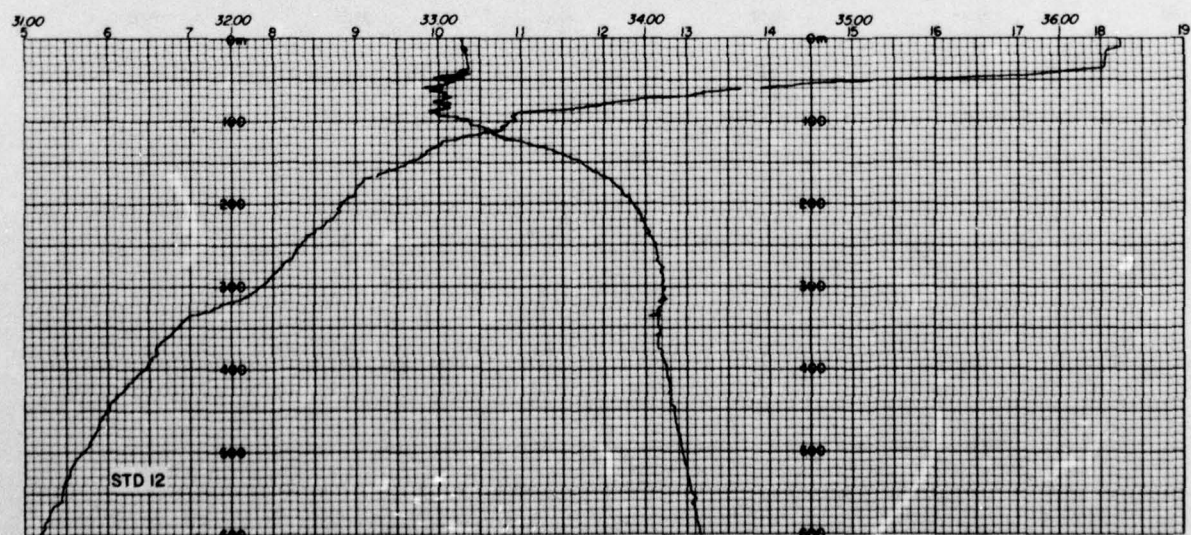
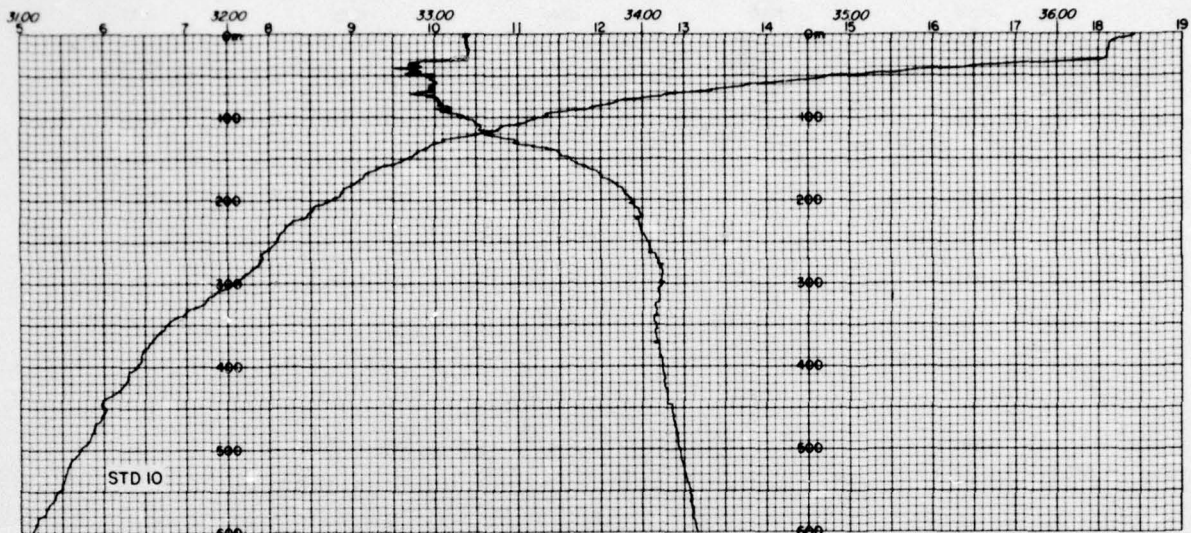
STD 32

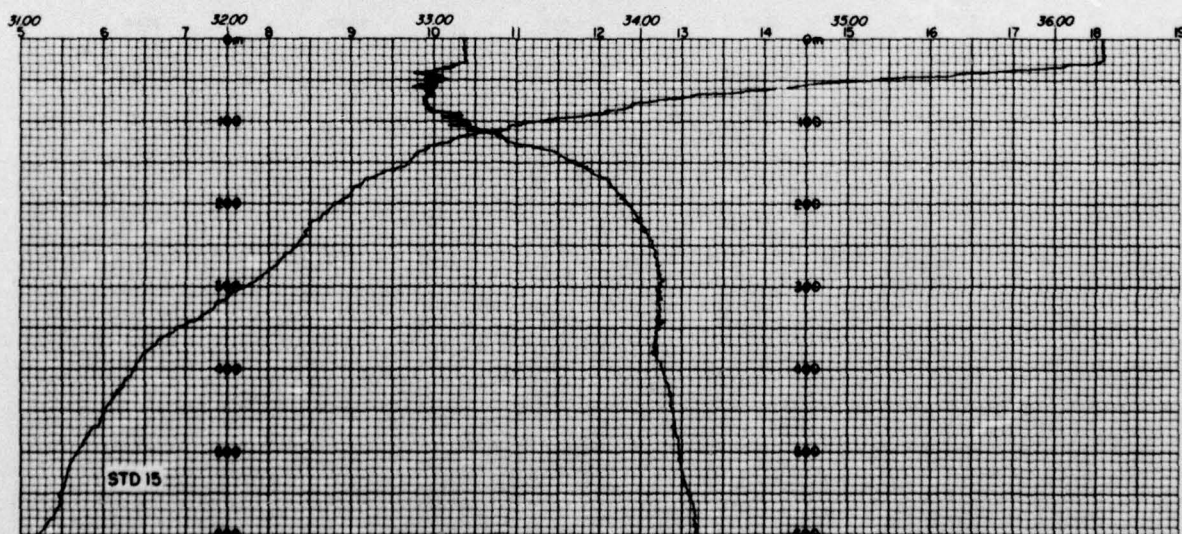
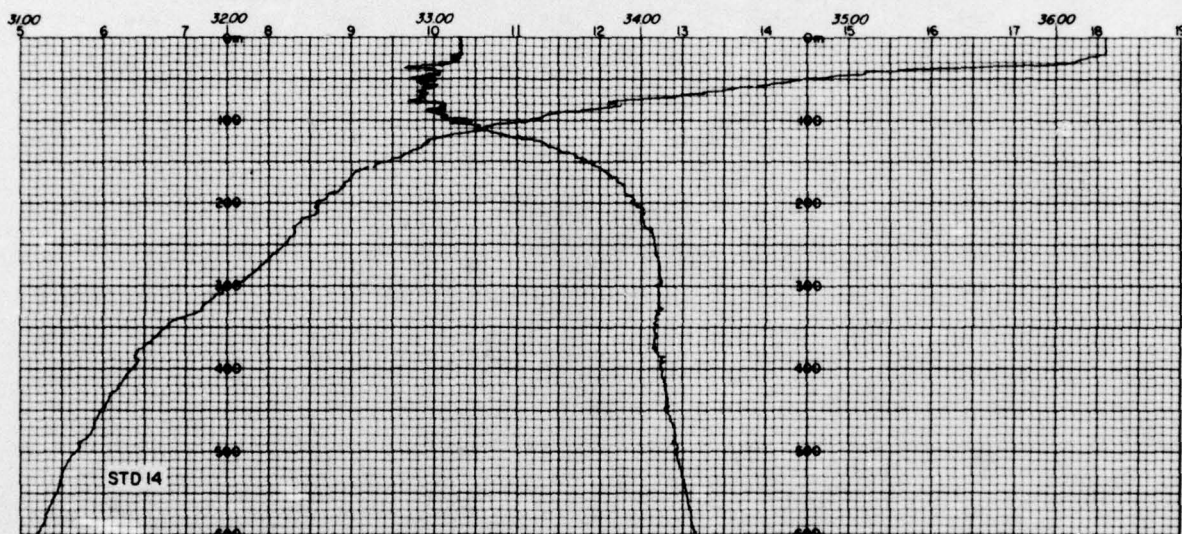
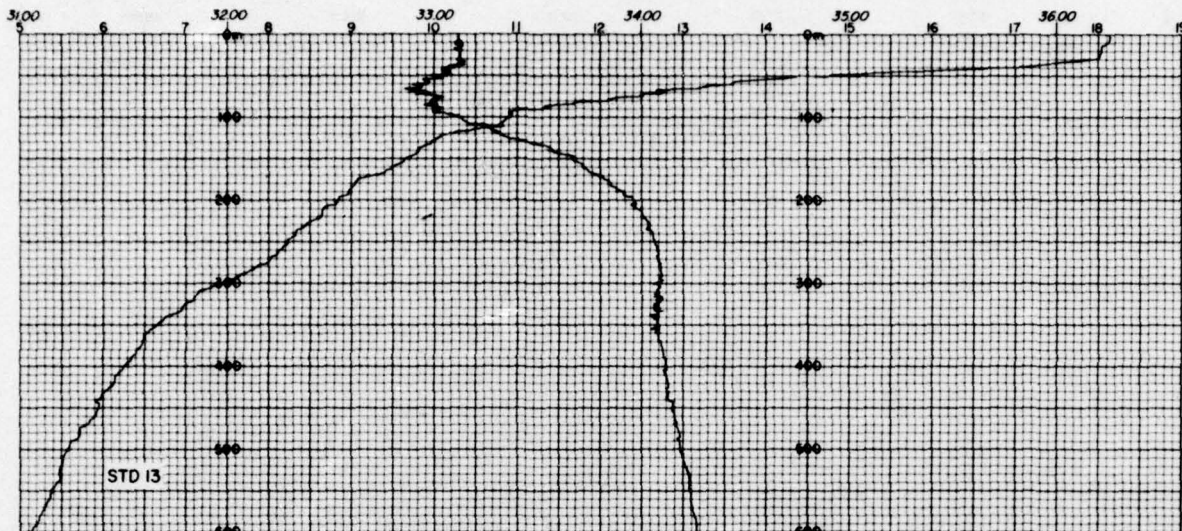
LATITUDE 33 54.5N			LONGITUDE 125 25.0W			MO/DAY/YR 09/19/66		MESSENGER TIME 0232 GMT		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
									0	18.48	33.07		23.699	420.6	0	
									10	18.48	33.07		23.699	420.6	.042	
									20	18.48	33.07		23.699	420.6	.084	
									30	17.95	33.05		23.814	409.7	.126	
									50	15.40	32.95		24.327	360.8	.203	
									75	12.80	32.98		24.890	307.2	.287	
									100	12.30	33.17		25.133	284.0	.361	
									125	11.10	33.26		25.425	256.3	.430	
									150	9.87	33.46		25.793	221.2	.490	
									200	8.82	33.87		26.283	174.7	.591	
									250	8.20	34.00		26.480	156.0	.675	
									300	7.51	34.04		26.613	143.4	.752	
									400	6.34	34.09		26.812	124.5	.892	
									500	5.70	34.18		26.964	110.1	1.015	
									600	5.04	34.25		27.098	97.4	1.125	

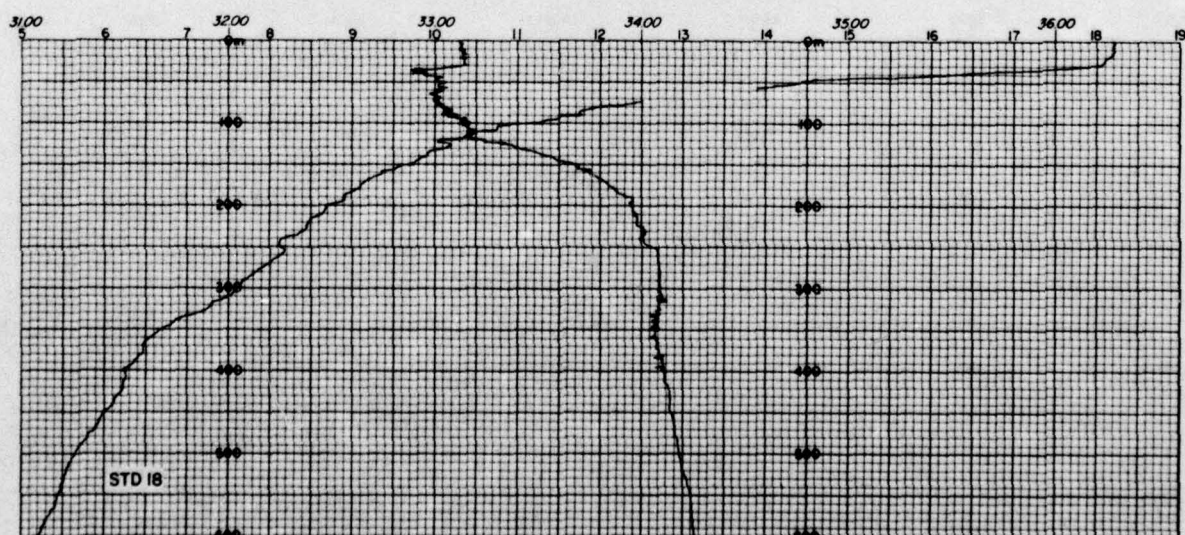
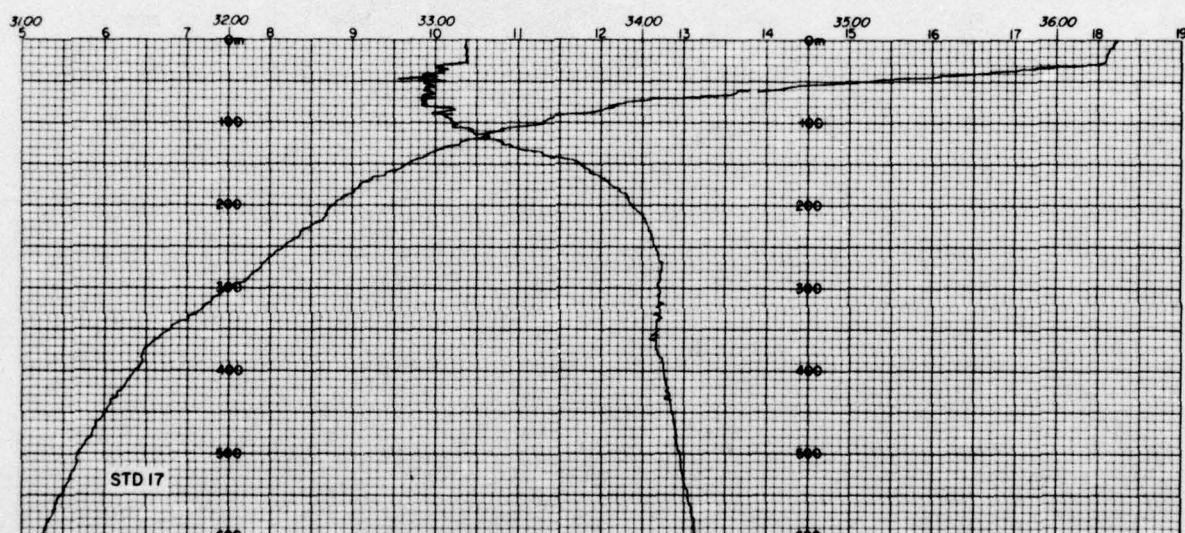


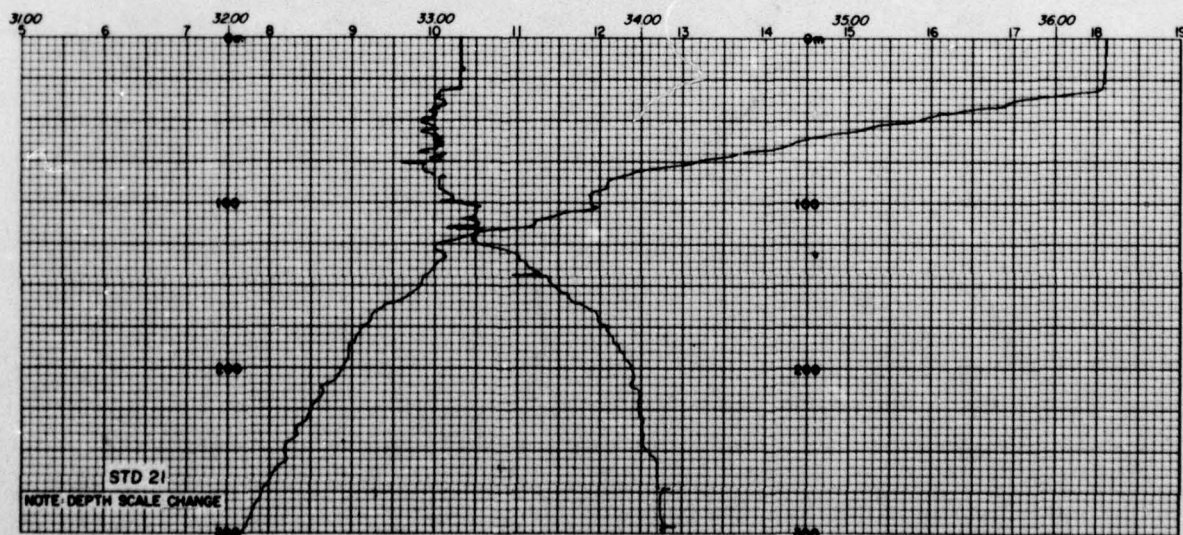
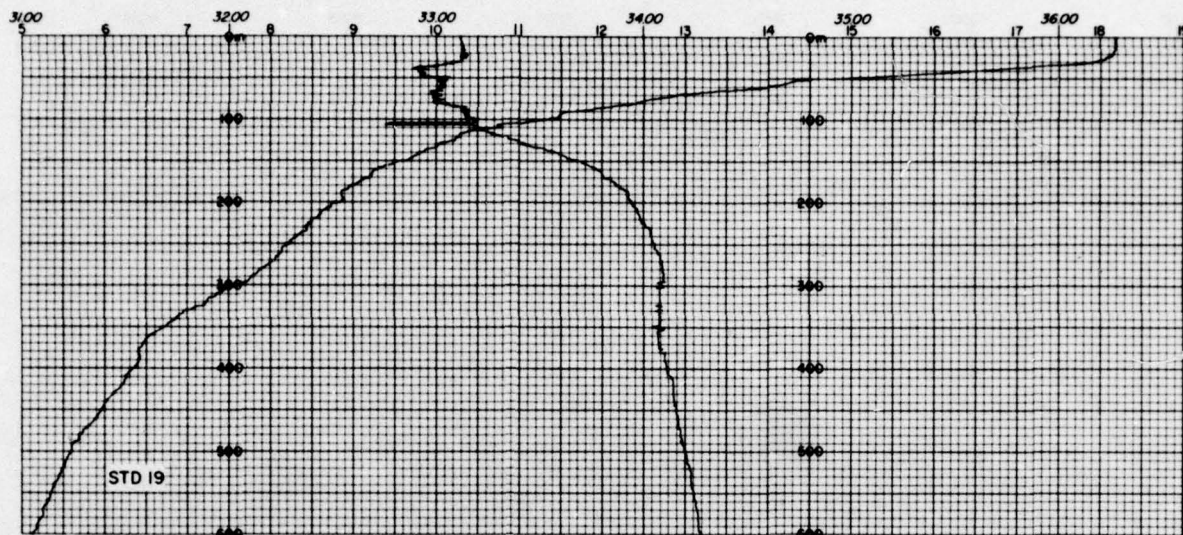


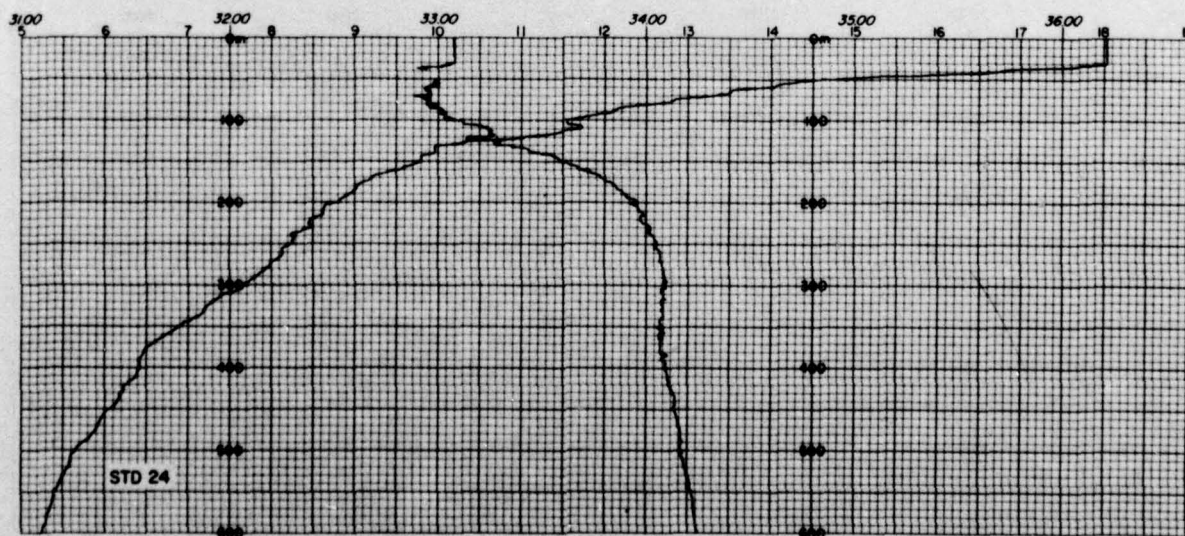
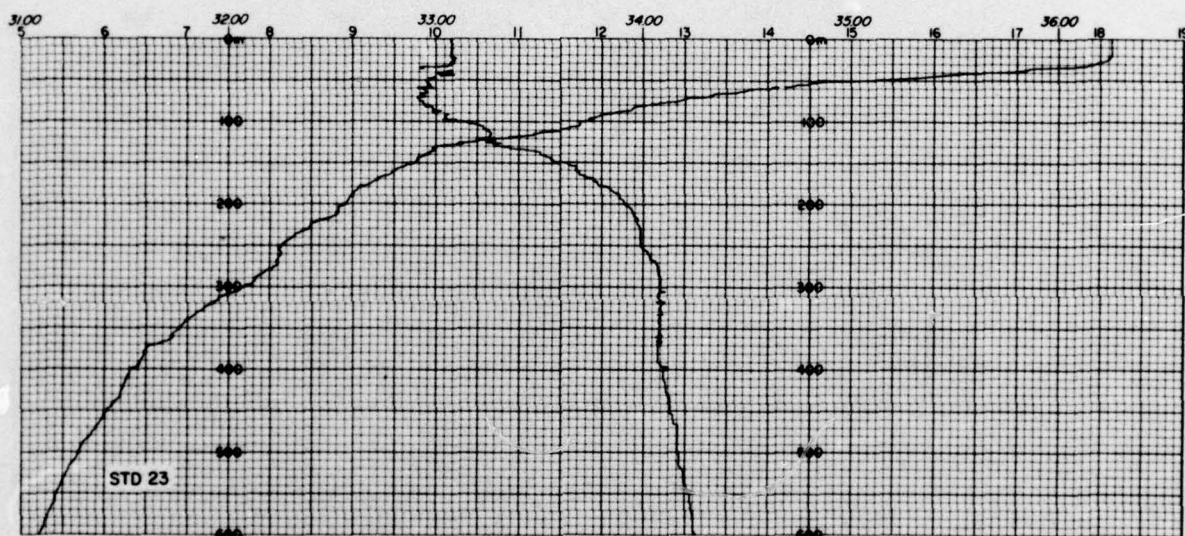


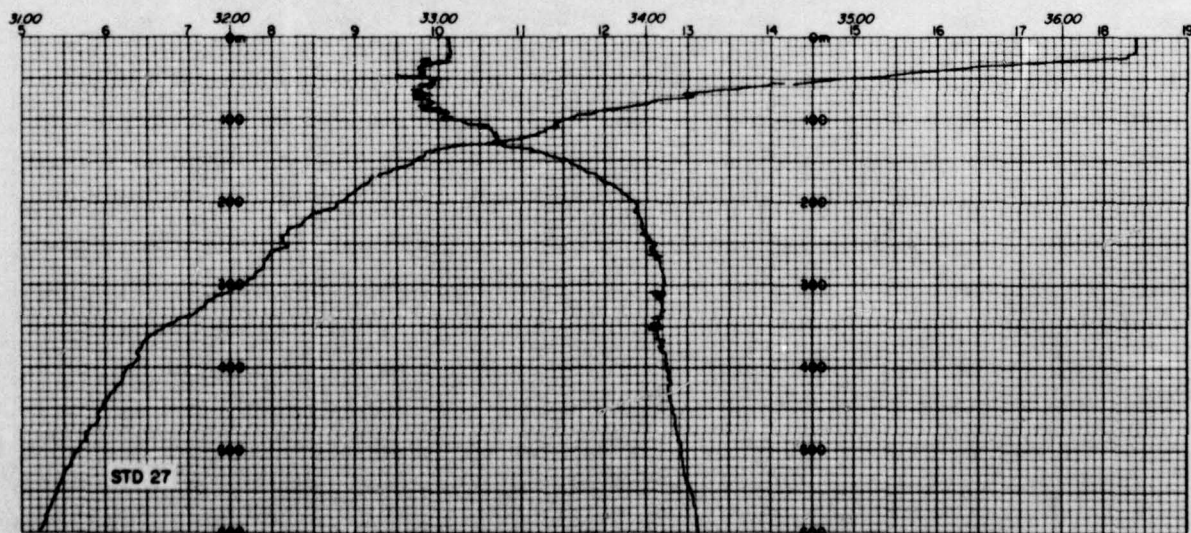
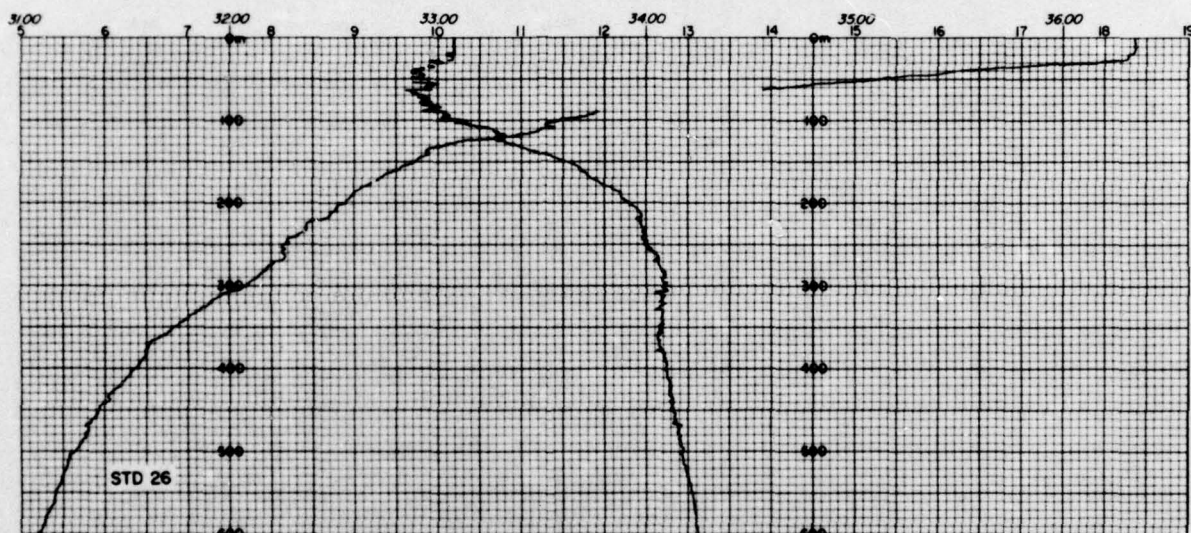


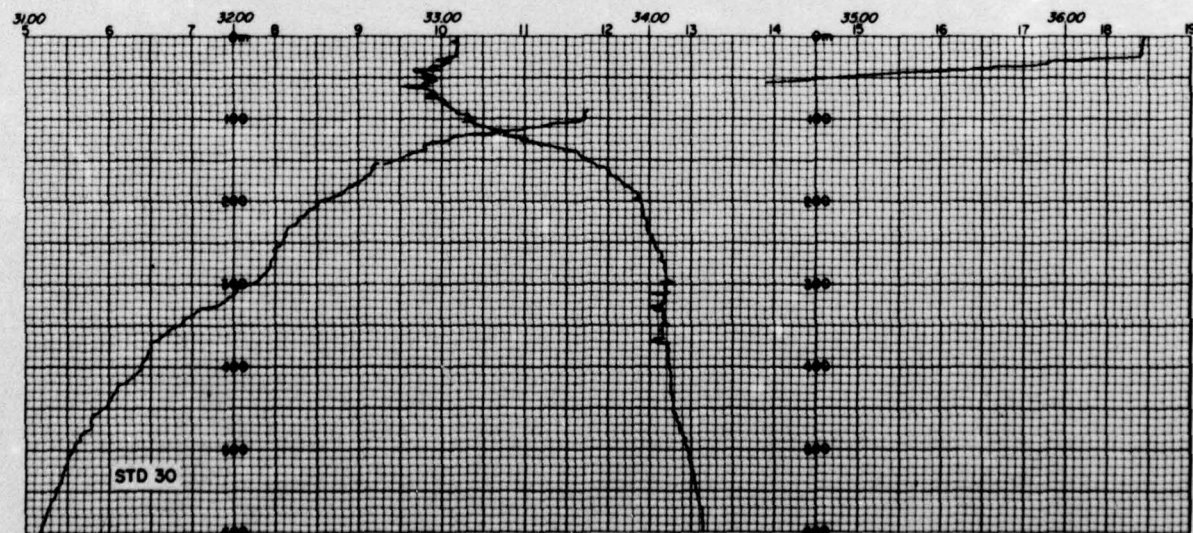
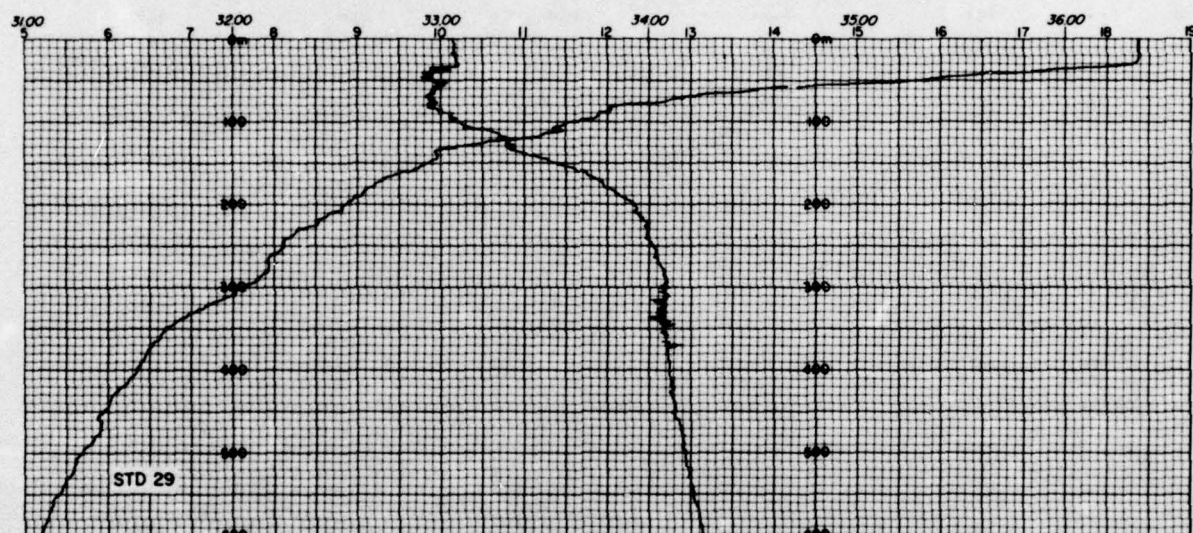
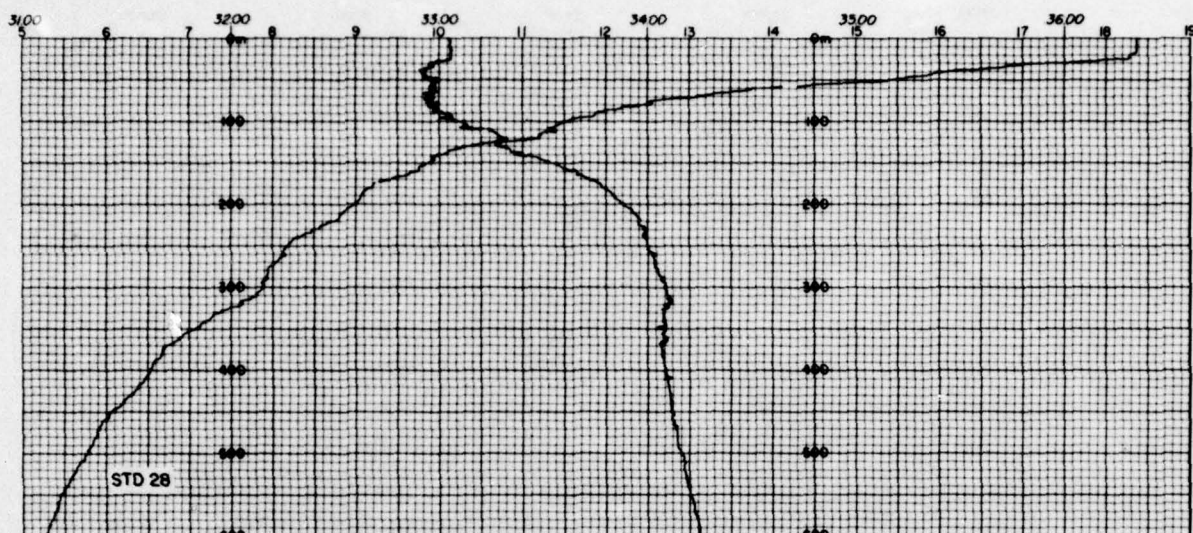


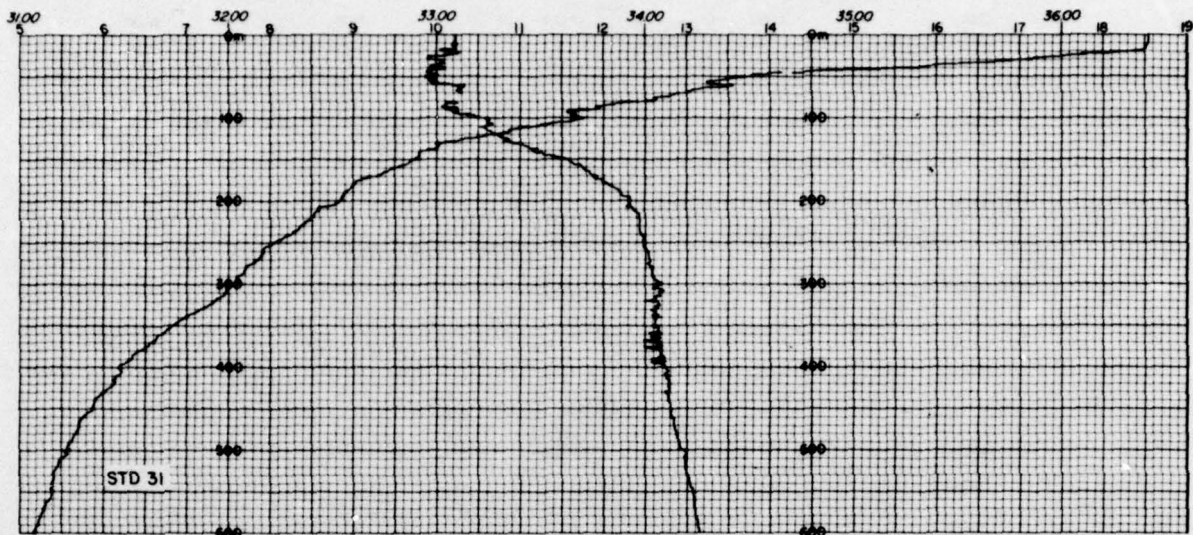












NOVA Expedition Legs I-VI

The purpose of NOVA I was to: 1) analyze rare gases in sea water, 2) take gravity and piston cores of sediments, 3) sample atmospheric dust continuously, and 4) isolate thorium isotopes from sea water for subsequent isotopic analysis.

No interpolated and calculated values at standard depths are listed for NOVA I because of uncertainties caused by frequent posttrips and widely spaced observations on multiple casts.

The purpose of NOVA II was to investigate the possibility that islands in a steady wind current shed alternating Kármán vortices on a much larger scale than those commonly observed in laboratory flow past cylinders.

The principal work done on NOVA III was: 1) the first precise profiles of dissolved total CO₂ were made; CO₂ production/O₂ consumption rates in the deep sea were compared; studies of total CO₂ in equatorial waters were made, 2) the relationships between stable inorganic carbon (total CO₂) and radio-carbon in deep sea water were studied, 3) studies were made of the circulation of bottom water based on temperature profiles from hydrographic casts and from thermometer data on heat probes, and 4) Dixon and Honhaus seamounts were discovered and the magnetic structure and history of Dixon seamount was studied.

On NOVA III when surface temperature was determined with a bucket or injection thermometer it is listed to tenths. When surface salinity and oxygen were determined from bucket samples they are listed to hundredths and tenths, respectively.

The purpose of NOVA V was to make geological observations (echo soundings, magnetic profiling, seismic refraction, dredging, coring, heat flow measurements, and photographing) in order to determine the nature of the sea floor and the geological structure beneath in several locations: between New Caledonia and the Loyalty Islands, across the New Hebrides Trench, along the Norfolk Ridge, in the New Caledonia Basin, over the Lord Howe Rise, and across the Tasman Basin.

Salinity is listed to hundredths on NOVA V because of uncertainty in operation of the salinometer.

The work carried out on NOVA VI was: 1) measurements of the He^3/He^4 ratio in dissolved helium in sea water; this work first established the presence of primordial excess He^3 in deep ocean water, 2) the first measured profiles of the radioactive isotope Si^{32} in ocean water were made, and 3) the structure of the benthic front in the deep South Pacific ocean was studied. (See also items 1, 2 and 3 on NOVA III, work which was continued on NOVA VI.)

NOVA Expedition was sponsored by the National Science Foundation and the Office of Naval Research.

Personnel participating in the collection of data:

<u>Name</u>	<u>Participation (Leg)</u>
Goldberg, Dr. E.*	I
Van Dorn, Dr. W. G.*	II
Craig, Dr. H.*	III, VI
Menard, Dr. H. W.*	V
Anceaux, J.	I
Bell, A.	V
Bieri, R.	I
Blankley, W. F.	II
Boden, B. P.	II
Brennen, R. E.	I, II, III
Chung, Y.	III
Church, T.	I
Craig, V.	VI
Dixon, F. S.	III
Dixon, R. L.	II
Earl, J. L.	I
Francheteau, J. M.	III, V
Fruchter, J. S.	III
Fuech, J.	VI
Hacker, P. W.	II
Hardy, J. A.	VI
Hugget, R. J.	III
Jones, A.	V
Jones, J. H.	II
Kerig, D.	V
Kirk, H. K.	V
Kiwala, R. S.	II
Koide, M.	I
Kolhage, J. M.	I, II
Lam, R. K.	II
Mauch, W. W.	II, III
McGowan, D.	V
Michael, F. A.	II, III
Newhouse, D. A.	V
Nicholson, J.	V
Obler, S.	I, II, V

*Chief Scientist

NameParticipation (Leg)

Peterson, M. R.	III
Pine, J. S.	II, VI
Rasmussen, R. A.	II
Rowe, A. R.	I, II, III
Sclater, J. G.	III
Sertic, P.	II
Shor, G. G.	I
Slawson, H. P.	III
Smith, W.	V
Solomon, S.	V
Somayajulu, B. L. K.	III, VI
Summerhayes, C.	V
Tait, R. J.	III
Taylor, G.	V
Taylor, L.	II
Van Dorn, R.	II
Waterman, L. S.	I, II, III, V
Weiss, R. F.	III, VI
Winsett, R. C.	II

Papers resulting from NOVA Expedition data:

Leg I

Bieri, R. H., M. Koide and E. D. Goldberg, 1968. Noble gases of marine waters. *Earth Planet. Sci. Lett.*, 4: 239-240.

Leg II

Van Dorn, W. G., P. W. Hacker and R. K. Lam, 1968. Circulation around oceanic islands. *SIO Ref.* 67-34.

Leg III

Francheteau, J., J. G. Sclater and H. Craig, 1969. Magnetization of a recently discovered seamount in the central Pacific. *Geophysics*, 34: 645-651.

Legs III and VI

Chung, Y., M. L. Bell, J. G. Sclater and C. Corry, 1969. Temperature data from the Pacific abyssal water. *SIO Ref.* 69-17.

Chung, Y., 1971. Pacific deep and bottom water studies based on temperature, radium and excess-radon measurements. Doctoral dissertation, Univ. Calif. San Diego, 239 pp.

Chung, Y., in press. Areal extent of the benthic front and variation of the "scale-height" in Pacific deep and bottom water. *J. Geophys. Res.*

Craig, H., 1969. Abyssal carbon and radiocarbon in the Pacific. *J. Geophys. Res.*, 74: 5491-5506.

Craig, H., 1971. The deep metabolism: oxygen consumption in abyssal ocean water. *J. Geophys. Res.*, 76: 5078-5086.

Edmond, J. M., Y. Chung and J. G. Sclater, 1971. Pacific bottom water: penetration east around Hawaii. *J. Geophys. Res.*, 76: 8089-8097.

Leg V

Shor, G. G., H. K. Kirk and H. W. Menard, 1971. Crustal structure of the Melanesian area. *J. Geophys. Res.*, 76: 2562-2586.

Leg VI

Clarke, W. B., M. A. Beg and H. Craig, 1969. Excess He^3 in the sea: evidence for terrestrial primordial helium. Earth Planet. Sci. Lett., 6: 213-220.

Craig, H., W. B. Clarke and M. A. Beg, in press. Excess He^3 in deep water on the East Pacific Rise. Earth Planet. Sci. Lett.

Somayajulu, B. L. K., D. Lal and H. Craig, 1973. Silicon-32 profiles in the South Pacific. Earth Planet. Sci. Lett., 18: 181-188.

A book resulting from NOVA Expedition is:

Menard, Henry W., 1969. Anatomy of an expedition. McGraw-Hill, New York, 255 pp. (Translated into Russian, 1974)

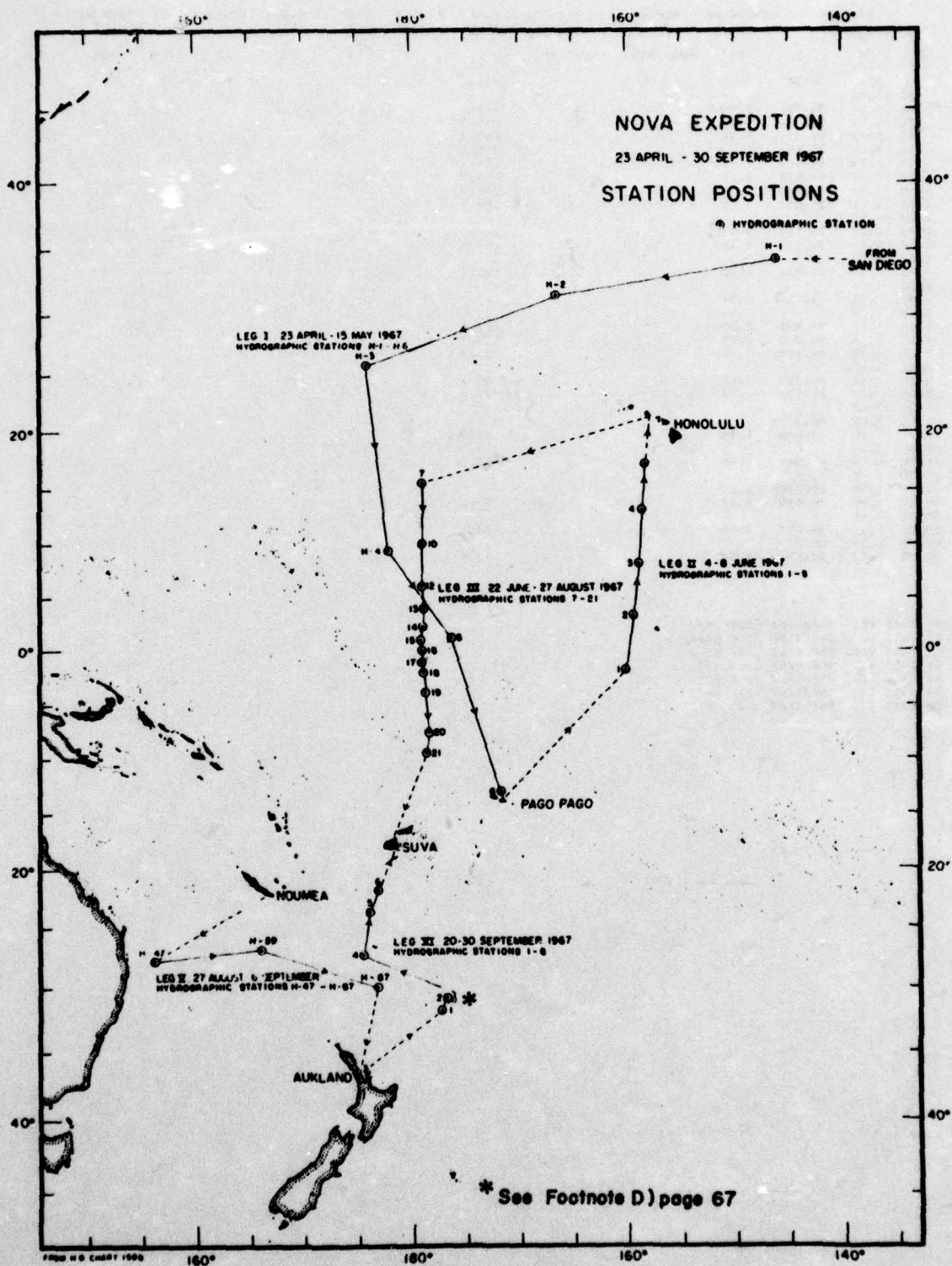


FIGURE 4

RV ARGO

NOVA EXPEDITION I

H 1

LATITUDE 34 20.9N		LONGITUDE 146 06.8W		MO/DAY/YR 04/23/67		MESSENGER TIME 2154 0907GMT		BOTTOM 5381M		WIND 080		SPEED 08KT		WEATHER		DOMINANT WAVES 040 07 12	
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD		
0	15.4	34.52						246.0									
9A	15.38																
108	15.38	34.521	5.99					245.5									
11C	15.39	34.534	5.92					244.8									
258	15.34	34.514	5.94					245.2									
508	15.28	34.498	5.93					245.1									
998	15.25	34.494	5.98					244.7									
1298	15.22	34.485	5.95					244.8									
1498	14.98	34.440	5.89					243.0									
202A	11.12	34.051	5.50					198.2									
252A	10.53																
253C	10.50	34.157	5.26					179.9									
303C	9.66	34.129	4.58					168.4									
305A	9.62																
405A	8.00	34.031	4.46					150.9									
407D	7.68																
509A	5.98	33.962	2.21					129.7									
514D	5.79																
607D	4.77	34.006	2.19					112.8									
711D	4.26	34.110	1.11					99.7									
789E	3.99	34.179	.70					91.8									
887E	3.66																
911D	3.58	34.283	.44					80.1									
984E	3.42	34.337	.38					74.6									
1469E	2.62																
1471D	2.62	34.352U															
1963E	1.98	34.616	1.76					41.5									
1974F	1.98																
2453E	1.69	34.648	2.70					37.0									
2463F	1.70																
2952F	1.56	34.588U	2.81														
3440F	1.47	34.680	3.32					33.1									
3889G	1.48																
3928F	1.48	34.687	3.60					32.6									
4417F	1.51																
5072G	1.57	34.691	3.52					32.9									

A) CAST VI. 04/24/67 0807 GMT.
 B) CAST I. 04/23/67 2154 GMT.
 C) CAST VII. 04/24/67 0907 GMT.
 D) CAST V. 04/24/67 0644 GMT.
 E) CAST IV. 04/24/67 0440 GMT.
 F) CAST III. 04/24/67 0215 GMT.
 G) CAST II. 04/23/67 2315 GMT.

RV ARGO

NOVA EXPEDITION I

H 2

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
31 34.7N		166 34.1W		04/28/67		2311 1313GMT		5726M									
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	S1GT	DT	DD		
0	17.8	34.88						273.1									
10A	16.94 U	34.884	5.90														
44A	17.70	34.882	5.74					270.6									
64A	16.78 F	34.717	5.88					261.7									
109A	14.94	34.506	5.79					237.4									
164A	14.42	34.526	5.37					225.2									
218A	13.18	34.455	5.25					206.0									
515B	7.56	34.047	4.07					143.6									
625B	5.40	34.000	4.07					120.1									
773B	4.14	34.128	1.38					97.1									
819B	4.00	34.166	1.44					92.9									
1023B	3.40	34.352	.41					73.2									
1516B	2.55	34.563	1.45					50.0									
1557C	2.48	34.557	1.40					49.9									
1856D	2.13	34.599	1.88					44.0									
2433D	1.73	34.646	2.40					37.4									
2555C	1.66	34.651	2.58					36.6									
2934D	1.57	34.666	2.92					34.8									
3076C	1.54	34.669	3.04					34.4									
3435D	1.50	34.676	3.24					33.6									
3588C	1.48	34.681	3.33					33.0									
3904E	1.51	34.686	3.40					32.9									
3939D	1.49	34.686	3.47					32.7									
4129C	1.48	34.696	3.55					31.9									
4396E	1.50	34.691	3.58					32.4									
4449D	1.50	34.690	3.63					32.5									
4638C	1.52	34.695	3.89					32.3									
4887E	1.56	34.691	3.96					32.8									
5380E	1.58	34.692	3.80					32.9									
5628E	1.60	34.705	4.08U					32.1									
5667E	1.60	34.702	3.87					32.3									

A) CAST VI. 04/29/67 1313 GMT. ALL DATA FROM CAST V REJECTED.
 B) CAST II. 04/29/67 0153 GMT.
 C) CAST IV. 04/29/67 0844 GMT.
 D) CAST III. 04/29/67 0335 GMT.
 E) CAST I. 04/28/67 2311 GMT.
 F) ALTERNATE VALUE 16.67 DEGREES.

RV ARGO

NOVA EXPEDITION I

H 3

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM		WIND		SPEED		WEATHER		DOMINANT WAVES	
25 44.7N		175 58.5E		05/04/67		0115 1510GMT		5897M									
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	S1GT	DT	DD		
0	22.8	35.43						359.8									
4A	22.78	35.432	5.10					359.1									
29A	22.68	35.426	5.14					356.8									
46A	21.57	35.377	5.33					330.6									
66B	20.32	35.267	5.32					306.3									
90B	19.43	35.211	5.47					288.1									
136B	18.24	35.063	5.54					270.1									
208C	17.12	34.793	5.32					263.8									
313C	14.51	34.575	4.92					223.5									
418C	11.70	34.350	4.94					186.3									
476D	10.12	34.227	4.73					168.5									
570D	7.51	34.074	3.65					140.9									
624D	6.28 G	34.071G	2.98G					125.2									
660D	5.50 G	34.057G	2.72G					117.0									
739D	4.90 G	34.088G	2.17G					108.0									
785D	4.50 G	34.178G	1.38G					97.0									
1009B	3.52 G	34.360G	.88G					73.7									
1064E	3.41 G	34.384G	.90G					70.9									
1128E	3.24 G	34.435G	.95G					65.5									
1432E	2.62 G	34.536G	1.48G					52.6									
1739E	2.14 G	34.591G	2.01G					44.6									
2030E	1.94 G	34.625G	2.39G					40.6									
4204C	1.48	34.640	2.55					36.2									
4422F	1.44	34.699	3.84					31.4									
4703C	1.45	34.667	.90U					33.9									
5057F	1.46	34.700	4.14					31.5									
5301C	1.44	34.700	4.04					31.3									
5543F	1.48	34.703	4.24					31.4									
5641F	1.48	34.703						31.4									
5739F	1.48	34.702	4.23					31.5									
5782F	1.47	34.706	4.19					31.1									

A) CAST V. 05/04/67 1403 GMT.
 B) CAST VI. 05/04/67 1510 GMT.
 C) CAST III. 05/04/67 0830 GMT.
 D) CAST II. 05/04/67 0405 GMT.
 E) CAST IV. 05/04/67 1159 GMT.
 F) CAST I. 05/04/67 0115 GMT.
 G) THESE DATA ARE VERY DOUBTFUL. THE SAMPLE BOTTLE POSTTRIPPED CAUSING A POSSIBLE DEPTH ERROR OF AS MUCH AS 15 PER CENT.

RV ARGO

NOVA EXPEDITION I

H 4

LATITUDE			LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
9 17.1N			177 56.1E		05/09/67		0002 0744GMT		5698N	180	02KT				
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	28.2	34.38						594.1							
10A	28.11	34.384	4.66					591.0							
49A	27.79	34.382						581.1							
68A	27.36	34.520	4.74					557.9							
103A	20.64	34.817	4.72					347.0							
152A	13.00	34.458	2.40					202.3							
201A	10.88	34.658	.46					149.3							
303B	9.70	34.679	.62					128.3							
412B	8.68	34.629	.53					116.3							
501C	7.82	34.586	.58					107.0							
603C	6.90	34.552	.65					97.1							
701C	6.08	34.545	.71					87.3							
805C	5.51	34.543	.97					80.7							
905C	5.01	34.547	1.14					74.8							
1006C	4.57	34.557	1.38					69.3							
1522B	2.96	34.601	1.96					50.6							
2063B	2.13	34.641	2.52					40.8							
2504B	1.80	34.664	2.82					36.6							
3093B	1.62	34.675	3.17					34.5							
3641D	1.46	34.690	3.56					32.2							
4127D	1.35	34.696	4.08					31.0							
4615D	1.30	34.704	4.34					30.1							
5103D	1.33	34.709	4.47					29.9							
5357D	1.34	34.706	4.52					30.2							
5592D	1.37	34.708	4.53					30.2							

A) CAST IV. 05/09/67 0744 GMT.
 B) CAST III. 05/09/67 0552 GMT.
 C) CAST II. 05/09/67 0230 GMT.
 D) CAST I. 05/09/67 0002 GMT.

RV ARGO

NOVA EXPEDITION I

H 5

LATITUDE			LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
1 05.6N			176 21.0W		05/11/67		2340 0922GMT		5394M						
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	27.5	35.16						516.2							
5A	27.48	35.154	4.72					516.0							
60A	27.18	35.210	4.61					502.2							
80A	27.06	35.243	4.50					496.7							
151B	23.78	35.166	3.30					406.0							
152B	23.71	35.171	3.33					403.7							
203A	13.90	34.842	3.26					191.7							
307A	11.30	34.822	2.24					144.5							
406A	9.18	34.678	1.64					120.2							
517C	7.74	34.605	1.84					104.5							
639C	6.42	34.564	1.77					90.1							
799D	5.34	34.545	2.19					78.6							
1000D	4.58	34.555	1.99					69.5							
1514D	2.93	34.608	2.34					49.8							
2029D	2.25	34.652	2.69					40.9							
2474D	1.82 F	34.664F	2.96F					36.7							
2823D	1.69 F	34.670F	3.18F					35.3							
3496E	1.52	34.684	3.55					33.1							
3979E	1.40	34.695	3.92					31.4							
4301E	1.30 F	34.702F	4.22F					30.2							
4469E	1.26	34.706	4.41					29.7							
4959E	1.28	34.706	4.54					29.8							
5303E	1.30	34.708	4.64					29.8							

A) CAST IV. 05/12/67 0847 GMT.
 B) CAST V. 05/12/67 0922 GMT.
 C) CAST II. 05/12/67 0223 GMT.
 D) CAST III. 05/12/67 0649 GMT.
 E) CAST I. 05/11/67 2340 GMT.
 F) THESE DATA ARE VERY DOUBTFUL. THE SAMPLE BOTTLE POSTTRIPPED CAUSING A POSSIBLE DEPTH ERROR OF AS MUCH AS 15 PER CENT.

RV ARGO

NOVA EXPEDITION I

H 6

LATITUDE 12 57.05		LONGITUDE 171 43.9W		MO/DAY/YR 05/15/67		MESSENGER TIME 1845 0022GMT		BOTTOM 4702M		WIND 060		SPEED 08KT		WEATHER 1		DOMINANT WAVES 060 04 09	
Z	T	S	DZ	P04	S103	N02	N03	DT	Z	T	S	DZ	SIGT	DT	DD		
3A	29.00	34.326	4.63					623.3									
35A	28.90	34.341	4.65					619.1									
84A	28.71	35.390	4.78					537.6									
85B	28.59	35.456	4.78					529.1									
104A	27.75	35.743	4.67					482.1									
1246	26.38	36.087	3.98					415.4									
165A	24.36	36.159	3.60					350.9									
217C	21.77	35.933	3.69					295.7									
324C	15.20	35.113	3.59					198.5									
432C	9.68	34.656	3.11					129.7									
540C	6.97	34.496	3.66					102.2									
648C	5.84	34.474	3.63					89.7									
756C	5.18	34.483	3.52					81.4									
856D	4.67	34.49	3.43					75.4									
1070D	3.94	34.527	3.26					65.2									
1588D	2.58	34.611	3.39					46.6									
2094D	2.04	34.654	3.50					39.1									
2687D	1.81	34.670	3.49					36.2									
3048E	1.65	34.677	3.54					34.5									
3522E	1.52	34.681	3.88					33.3									
4002E	1.22	34.722	4.76					28.2									
4484E	1.08	34.717	4.87					27.7									
4629E	1.03	34.703	4.86					28.4									
4674E	1.03	34.718	4.89					27.3									

A) CAST IV. 05/15/67 2344 GMT.
 B) CAST V. 05/16/67 0022 GMT.
 C) CAST II. 05/15/67 2059 GMT.
 D) CAST III. 05/15/67 2218 GMT.
 E) CAST I. 05/15/67 1845 GMT.

RV ARGO			NOVA EXPEDITION II												1 A	
LATITUDE 1 50.05			LONGITUDE 160 06.5W		MO/DAY/YR 06/04/67		MESSENGER 1929		TIME GMT	BOTTOM 5201M	WIND	SPEED	WEATHER	DOMINANT WAVES		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	27.14	35.185						503.3	0	27.14	35.185		22.833	503.3	0	
10	27.12	35.184						502.8	10	27.12	35.184		22.839	502.8	.050	
48	27.15	35.320						493.9	20	27.13	35.214		22.858	500.9	.101	
97	26.82	35.329						483.2	30	27.14	35.249		22.881	498.8	.151	
145	19.16	35.554						256.6	50	27.14	35.320		22.936	493.5	.250	
194	13.15	35.008						164.8	75	26.97	35.325		22.994	488.0	.374	
									100	26.42	35.343		23.181	470.2	.494	
									125	22.69	35.444		24.381	355.8	.599	
									150	18.34	35.488		25.579	241.6	.674	
									200	12.90	35.000		26.431	160.6	.778	

RV ARGO				NOVA EXPEDITION II										1 B	
LATITUDE 1 50.05		LONGITUDE 160 06.5W		MO/DAY/YR 06/04/67		MESSENGER 1947		TIME GMT	BOTTOM 5201M	WIND	SPEED	WEATHER	DOMINANT WAVES		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
0	27.15	35.189						503.3	0	27.15	35.189		22.833	503.3	0
10	27.12	35.184						502.8	10	27.12	35.184		22.839	502.8	.050
49	27.12	35.303						494.2	20	27.12	35.208		22.857	501.1	.101
99	26.82	35.329						483.2	30	27.12	35.236		22.878	499.0	.151
148	18.48	35.482						245.4	50	27.11	35.303		22.931	494.0	.250
197	12.40	34.946						155.2	75	26.96	35.316		22.989	488.5	.374
									100	26.68	35.331		23.091	478.7	.496
									125	22.75	35.385		24.318	361.8	.602
									150	18.14	35.455		25.603	239.3	.678
									200	12.25	34.940		26.513	152.9	.779

RV ARGO				NOVA EXPEDITION II										2 A			
LATITUDE 3 14.4N			LONGITUDE 159 30.0W		MO/DAY/YR 06/05/67		MESSENGER 1821		TIME GMT	BOTTOM 3757M	WIND 090	SPEED 01KT	WEATHER 1	DOMINANT WAVES 110 02 10			
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD		
0	27.34	35.062						518.3	0	27.34	35.062		22.677	518.3	0		
10	27.23	35.078						513.8	10	27.23	35.078		22.724	513.8	.052		
50	27.03	35.096						506.4	20	27.16	35.085		22.752	511.1	.103		
101	26.90	35.152						498.4	30	27.10	35.090		22.775	508.9	.154		
156	20.09	34.801						334.2	50	27.03	35.096		22.802	506.4	.256		
205	11.38	34.598						162.4	75	26.97	35.123		22.843	502.4	.383		
									100	26.90	35.151		22.884	498.5	.509		
									125	24.55	35.017		23.512	438.5	.627		
									150	21.08	34.837		24.369	356.8	.728		
									200	12.38	34.591		26.216	181.0	.865		

RV ARGO				NOVA EXPEDITION II										2 B	
LATITUDE 3 14.4N		LONGITUDE 159 30.0W		MO/DAY/YR 06/05/67		MESSENGER 1838		TIME GMT	BOTTOM 3757M	WIND J90	SPEED 01KT	WEATHER 1	DOMINANT WAVES 110 02 10		
Z	T	S	OZ	PO4	S103	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD
0	27.44								0	27.44					
10	27.22								10	27.22					
50	27.02								20	27.17					
100	26.90								30	27.12					
155	18.18								50	27.02					
204	11.12								75	26.96					
									100	26.90					
									125	23.44					
									150	19.14					
									200	11.67					

RV ARGO			NOVA EXPEDITION II												3 A	
LATITUDE 8 07.0N			LONGITUDE 158 55.5W		MO/DAY/YR 06/06/67		MESSENGER 1818		TIME GMT	BOTTOM 2876M	WIND 060	SPEED 05KT	WEATHER 1	DOMINANT WAVES 060 04 06		
Z	T	S	O2	PD4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DP	
0	27.54	34.458						567.9	0	27.54	34.458		22.158	567.9	0	
10	27.57	34.458						568.8	10	27.57	34.458		22.149	568.8	.057	
48	27.45	34.461						564.9	20	27.54	34.459		22.159	567.8	.114	
96	18.38	34.777						294.2	30	27.51	34.460		22.170	566.8	.171	
146	12.05	34.859						169.9	50	27.14	34.466		22.292	555.1	.283	
193	10.18	34.871						136.7	75	22.78	34.568		23.689	421.8	.406	
									100	17.73	34.769		25.179	279.6	.494	
									125	14.24	34.730		25.966	206.7	.556	
									150	11.76	34.661		26.389	164.6	.603	
									200	10.13	34.675		26.696	135.6	.680	

RV ARGO										NOVA EXPEDITION II										3 8
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES							
8 07.0N		158 55.5W		06/06/67		1835		GMT	2876M	060	05KT	1	060 04 06							
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD					
0	27.58								0	27.58										
10	27.56								10	27.56										
48	27.38								20	27.51										
96	19.30								30	27.47										
146	12.05								50	27.12										
193	10.32								75	23.31										
									100	18.60										
									125	14.68										
									150	11.90										
									200	10.27										

RV ARGO				NOVA EXPEDITION II										4 A	
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
13 05.0N		158 36.5W		06/07/67		1815		GMT	5119M	090	13KT		03 07		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	26.80	34.314						555.6	0	26.80	34.314		22.287	555.6	0
10	26.79	34.312						555.4	10	26.79	34.312		22.288	555.4	.056
49	26.79	34.316						555.2	20	26.79	34.313		22.289	555.4	.111
98	22.43	34.876						389.8	30	26.79	34.314		22.290	555.3	.167
153	17.94	34.789						283.0	50	26.72	34.328		22.322	552.3	.278
202	12.26	34.265						202.7	75	24.74	34.608		23.146	473.5	.407
									100	22.27	34.880		24.071	385.2	.515
									125	20.32	34.870		24.597	335.0	.606
									150	18.21	34.804		25.088	288.3	.685
									200	12.53	34.292		25.957	205.7	.811

RV ARGO					NOVA EXPEDITION II										4 B
LATITUDE 13 05.0N		LONGITUDE 158 36.5W		MO/DAY/YR 06/07/67		MESSENGER 1831		TIME GMT	BOTTOM 5119M	WIND 090	SPEED 13KT	WEATHER	DOMINANT WAVES 03 07		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	26.79								0	26.79					
10	26.78								10	26.78					
49	26.78								20	26.78					
98	22.50								30	26.78					
154	17.88								50	26.72					
202	12.08								75	24.79					
									100	22.35					
									125	20.40					
									150	18.24					
									200	12.36					

RV ARGO					NOVA EXPEDITION II										5 A
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
17 11.5N		158 15.0W		06/08/67		1830		GMT	4498M	260	14KT	1	03 08		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	26.28	34.508						526.0	0	26.28	34.508		22.597	526.0	0
10	26.29	34.509						526.2	10	26.29	34.509		22.594	526.2	.053
48	26.28	34.517						525.3	20	26.29	34.511		22.597	526.0	.105
96	24.70	34.747						462.4	30	26.28	34.513		22.599	525.7	.158
151	21.79	35.097						356.7	50	26.24	34.524		22.621	523.7	.263
198	18.10	34.848						282.4	75	25.55	34.628		22.912	495.8	.391
									100	24.53	34.784		23.340	454.9	.511
									125	23.33	34.971		23.836	407.6	.620
									150	21.85	35.093		24.349	358.7	.717
									200	18.08	34.848		25.155	281.9	.880

RV ARGO					NOVA EXPEDITION II										5 B
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
17 11.5N		158 15.0W		06/08/67		1848		GMT	4498M	260	14KT	1	03 08		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	26.28								0	26.28					
10	26.28								10	26.28					
48	26.28								20	26.28					
96	24.64								30	26.28					
151	21.90								50	26.25					
198	18.10								75	25.63					
									100	24.68					
									125	23.48					
									150	21.97					
									200	18.08					

RV ARGO

NOVA EXPEDITION III

7

LATITUDE 15 18.5N			LONGITUDE 178 56.6W		MO/DAY/YR 06/22/67		MESSENGER TIME 0903 1207GMT		BOTTOM 5104M	WIND 100	SPEED 08KT	WEATHER 1	DOMINANT WAVES 100 07 08		
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
3	28.0	34.46						582.1	0	28.0	34.46		22.010	582.1	0
11A	27.90	34.458	4.77					570.1	10	27.91	34.458		22.038	579.4	.098
31A	27.88	34.453	4.79					578.8	20	27.89	34.456	4.78	22.043	579.0	.116
51A	27.88	34.459	4.57					578.4	30	27.88	34.453	4.79	22.044	578.8	.174
65A	26.27	34.780	4.92					508.1	50	27.88	34.459	4.57	22.048	578.4	.290
78A	25.64	34.891	5.02					479.4	75	25.74	34.874	5.01	23.040	483.6	.424
107A	24.60	35.084	4.90					435.2	100	24.87	35.047	4.95	23.437	445.7	.541
122A	23.70	35.14	4.85					405.6	125	23.55	35.154	4.85	23.911	400.4	.647
146A	22.38	35.20	4.86					365.0	150	22.04	35.179	4.83	24.363	357.3	.743
192A	18.10	34.85	4.35					282.3	200	17.45	34.787	4.26	25.262	271.8	.904
240A	14.49	34.50	3.99					228.6	250	13.84	34.452	4.10	25.816	219.0	1.030
288A	11.40	34.28	4.29					186.2	300	10.62	34.224	4.09	26.259	177.0	1.132
297A	10.78	34.234	4.14					178.9	400	7.68	34.192	2.48	26.707	134.5	1.295
358A	8.64	34.164	3.24					150.2	500	6.49	34.332	1.41	26.982	108.4	1.423
478A	6.64	34.299	1.40					112.7	600	6.06	34.445	1.41	27.128	94.5	1.532
573A	6.20	34.428	1.43					97.5	700	5.54	34.485	1.34	27.224	85.4	1.630
765A	5.21	34.49	1.30					81.3	800	5.04	34.499	1.31	27.294	78.8	1.722
958A	4.38	34.528	1.42					69.5	1000	4.24	34.533	1.46	27.412	67.7	1.887
1055A	4.06	34.539	1.54					65.4	1200	3.62	34.558	1.80	27.495	59.8	2.034
1153A	3.72	34.553	1.80					61.1	1500	2.92	34.587	1.83	27.584	51.4	2.230
1445	3.10	34.579	1.77					53.4	2000	2.04	34.644	2.44	27.705	39.9	2.514
1541	2.79	34.592	1.88					49.8	2500	1.76	34.660	2.83	27.739	36.7	2.760
2322	1.88	34.660	2.75					37.5	3000	1.59	34.673	3.03	27.763	34.4	2.988
2713	1.66	34.659	2.93					36.0	3500	1.50	34.686	3.29	27.780	32.8	3.211
2811	1.62	34.663	3.00					35.4	4000	1.48	34.687	3.92	27.782	32.6	3.433
3820	1.45	34.685	3.61					32.5	4500	1.35	34.698	4.06	27.800	30.9	3.653
3981B	1.48	34.687	3.94					32.6	5000	1.32	34.699		27.803	30.6	3.870
4108	1.44	34.687	3.79					32.3							
4206	1.41	34.694	3.81					31.6							
4256	1.40	34.692	3.93					31.7							
4306	1.40	34.690	3.92					31.8							
4355	1.38	34.700	3.99					30.9							
4405	1.38	34.695	4.26					31.3							
4456	1.35	34.697	4.11					31.0							
4505	1.35	34.698	4.05					30.9							
4526	1.30	34.698	4.16												
4545	1.33	34.699	4.19					30.7							
4566	1.32	34.698	4.27					30.7							
4584	1.32	34.699	4.25					30.6							
4996B	1.33	34.698	4.65					30.7							

RV ARGO

NOVA EXPEDITION III

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LATITUDE 9 53.5N			LONGITUDE 179 00.0W		MO/DAY/YR 06/25/67		MESSENGER TIME 1410 1620GMT		BOTTOM 6152M	WIND 080	SPEED 13KT	WEATHER 2	DOMINANT WAVES 080 07 10		
Z	T	S	O2	PO4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0C	28.0	34.23						598.6	0	28.0	34.23		21.838	598.6	0
11C	28.00	34.24	4.62					597.9	10	28.00	34.24		21.845	597.9	.060
31C	28.00	34.25	4.63					597.2	20	28.00	34.24	4.62	21.849	597.6	.120
69C	27.02	34.90	4.90					520.1	30	28.00	34.25	4.63	21.852	597.2	.180
88C	24.68	34.98	5.06					445.0	50	27.51	34.40	4.74	22.126	571.0	.297
107C	21.60	34.94	4.74					363.0	75	26.39	34.94	4.98	22.888	498.1	.431
126C	18.84	34.82	4.07					302.1	100	22.76	34.96	4.91	23.995	392.4	.543
159C	14.64	34.52	3.10					230.2	125	18.98	34.83	4.11	24.914	304.8	.631
182C	12.61	34.47	2.81					194.1	150	15.67	34.59	3.32	25.528	246.5	.701
208C	11.13	34.58	.87					159.4	200	11.48	34.54	1.48	26.347	168.6	.807
236C	10.75	34.48	.46					145.5	250	10.56	34.70	.46	26.642	140.6	.887
291C	10.05	34.72	.45					130.9	300	9.95	34.72	.47	26.758	129.6	.958
354C	9.41	34.67	.62					124.4	400	9.02	34.64	.62	26.857	120.3	1.090
509C	8.15	34.60	.61					110.7	500	8.22	34.60	.61	26.950	111.5	1.214
662C	6.82	34.56	.68					95.5	600	7.34	34.57	.65	27.054	101.6	1.330
828C	5.74	34.5630	1.09					81.9	700	6.55	34.56	.77	27.153	92.2	1.437
1012C	4.77	34.5860	1.36					69.2	800	5.90	34.56	1.01	27.239	84.0	1.536
1506C	3.01	34.662	1.90					46.4	1000	4.83	34.59	1.35	27.387	70.0	1.712
2018C	2.10	34.662	2.55					39.0	1200	3.98	34.62	1.58	27.507	58.7	1.862
2445A	1.84	34.659	2.75					37.3	1500	3.03	34.66	1.89	27.634	46.6	2.052
3394A	1.52	34.680	3.37					33.4	2000	2.12	34.66	2.53	27.714	39.0	2.316
3487A	1.50	34.679	3.49					33.3	2500	1.81	34.66	2.77	27.736	37.0	2.555
4060A	1.36	34.694	4.01					31.2	3000	1.62	34.67	3.03	27.760	34.6	2.784
4542A	1.30	34.703	4.34					30.2	3500	1.50	34.68	3.50	27.775	33.3	3.007
5030A	1.32	34.709	4.45					29.8	4000	1.37	34.69	3.97	27.793	31.5	3.225
5389B	1.33	34.652U	4.65						4500	1.30	34.70	4.32	27.807	30.2	3.437
5518A	1.36	34.705	4.57					30.4	5000	1.32	34.71	4.44	27.811	29.9	3.649
5871A	1.40	34.708	4.52					30.5	5500	1.36	34.71	4.58	27.805	30.4	3.868
5921A	1.40	34.712	4.49					30.1	6000	1.42	34.71	4.56	27.802	30.7	4.098
5970A	1.41	34.708	4.58					30.5							
6019A	1.42	34.706	4.55					30.7							
6039A	1.42	34.709	4.50					30.5							
6040B	1.41	34.704	4.60					30.8							
6059A	1.42	34.706	4.58					30.7							

A) CAST II.

B) CAST I. HEAT PROBE LOWERING WITH TWO HANSEN BOTTLES ATTACHED.

C) CAST III. 06/26/67 1620 GMT.

D) THE SALINITY SAMPLES AT 69 AND 182 METERS, 88 AND 291 METERS, AND 828 AND 1012 METERS RESPECTIVELY, APPEAR TO HAVE BEEN REVERSED. THEY ARE ASSUMED TO BE IN THE CORRECT ORDER.

RV ARGO			NOVA EXPEDITION III												12				
LATITUDE 6 00.0N		LONGITUDE 179 00.0W		MO/DAY/YR 06/28/67		MESSENGER 0610		TIME GMT		BOTTOM 5722M		WIND 070		SPEED 13KT		WEATHER 2		DOMINANT WAVES 060 04 09	
Z	T	S	Q2	PD4	S103	NO2	NO3	DT	Z	T	S	Q2	SIGT	DT	DD				
3	28.8	34.15						629.6											
4045A	1.32	34.71	4.18					29.8											
4986A	1.29	34.721	3.89					28.7											
5643A	1.36	34.725						28.9											

RV ARGO				NOVA EXPEDITION III												13	
LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES					
3 55.6N		178 47.3W		06/28/67		2303 1818GMT		5375M	110	08KT	1	080 06 09					
Z	T	S	Q2	PD4	S103	NO2	NO3	DT	Z	T	S	Q2	SIGT	DT	DD		
3	29.0	34.49						611.5	0	29.0	34.49		21.702	611.5	0		
108	29.00	34.503	4.55					610.6	10	29.00	34.503	4.55	21.712	610.6	.061		
538	28.90	34.507	4.60					407.1	20	28.98	34.504	4.56	21.720	609.8	.122		
628	28.90	34.525	4.58					405.8	30	28.95	34.505	4.57	21.729	609.0	.183		
1108	26.13	34.777	3.90					502.1	50	28.91	34.507	4.60	21.746	607.4	.305		
1378	21.10	34.794	3.58					360.5	75	28.15	34.620	4.44	22.081	575.3	.454		
1988	11.43	34.583	1.56					164.4	100	26.97	34.758	4.08	22.568	528.7	.593		
382C	0.32	34.62	1.62					111.7	125	23.49	34.779	3.74	23.644	425.9	.713		
599C	6.44	34.56	1.18					90.6	150	18.76	34.715	3.18	24.883	307.8	.806		
796C	5.29	34.54	1.71					78.4	200	11.40	34.584	1.56	26.398	163.8	.926		
1018C	4.44	34.56	1.98					67.7	250	10.55	34.582	1.58	26.549	149.5	1.007		
2496C	1.83	34.661	3.22					37.0	300	9.71	34.589	1.59	26.700	135.2	1.081		
3881C	1.42	34.692						31.8	400	8.12	34.618	1.57	26.976	108.9	1.210		
4125C	1.32	34.695						30.9	500	7.14	34.597	1.35	27.102	97.0	1.320		
4371C	1.27	34.705						29.8	600	6.43	34.560	1.18	27.170	90.6	1.423		
4607D	1.24	34.725U	4.49						700	5.79	34.546	1.41	27.241	83.8	1.519		
4617C	1.24	34.705						29.6	800	5.27	34.540	1.72	27.301	78.2	1.609		
4866C	1.28	34.721						28.7	1000	4.50	34.558	1.96	27.403	68.5	1.776		
5060C	1.28	34.723						28.5	1200	3.91	34.576		27.479	61.3	1.926		
5256C	1.31	34.701U							1500	3.27	34.602		27.573	52.4	2.129		
5262D	1.31	34.705U	4.56						2000	2.29	34.642		27.683	41.9	2.417		
5306C	1.32	34.724						28.7	2500	1.83	34.662		27.735	37.0	2.666		
									3000	1.68	34.672		27.755	35.1	2.897		
									3500	1.53	34.684		27.775	33.2	3.122		
									4000	1.37	34.693		27.795	31.4	3.339		
									4500	1.25	34.705		27.813	29.7	3.547		
									5000	1.28	34.723		27.825	28.6	3.753		

RV ARGO				NOVA EXPEDITION III												14	
LATITUDE 2 09.8N		LONGITUDE 178 57.9W		MO/DAY/YR 06/30/67		MESSENGER 0911		TIME GMT	BOTTOM 5399M	WIND	SPEED	WEATHER	DOMINANT	WAVES			
Z	T	S	Q2	PD4	S103	NO2	NO3	DT	Z	T	S	Q2	SIGT	DT	DD		
0	28.6	34.97						564.3									
65	28.06	35.189	4.48					531.5									
109	28.00	35.260	4.27					524.6									
158	17.04	34.713	3.45					267.8									
206	12.68	34.822	3.08					169.5									
273	11.35	34.819	2.48					145.4									
379	9.54	34.714	1.68					123.2									
627	6.30	34.556	1.68					89.2									
821	5.00	34.571	2.01					72.9									
1066	4.54	34.571	2.23					67.9									

RV ARGO			NOVA EXPEDITION III											15					
LATITUDE 1 00.0N		LONGITUDE 179 08.2W		MO/DAY/YR 07/01/67		MESSENGER 0210		TIME GMT		BOTTOM 4967M		WIND 170		SPEED 08KT		WEATHER 1		DOMINANT WAVES 150 05 09	
Z	T	S	Q2	PD4	S103	NO2	NO3	DT	Z	T	S	Q2	SIGT	DT	DD				
0	28.5	35.04						556.1											
89	27.66	35.390						504.6											
138	21.06	35.093						337.8											
196	16.72	35.074	3.34					234.3											
294	12.50	34.887	2.83					161.4											
313	11.06	34.804	2.34					141.7											
392	9.42	34.685	2.06					123.5											
857	5.15	34.564	2.11					75.0											

A) HEAT PROBE LOWERING WITH THREE NANSSEN BOTTLES ATTACHED.
 B) CAST II. 06/29/67 1111 GMT.
 C) CAST III.
 D) CAST I. HEAT PROBE LOWERING WITH TWO NANSSEN BOTTLES ATTACHED.

RV ARGO				NOVA EXPEDITION III												16
LATITUDE 0 01.05		LONGITUDE 179 07.9W		MO/DAY/YR 07/01/67		MESSENGER TIME 1110 1556GMT		BOTTOM 5413M	WIND 120	SPEED 08KT	WEATHER 1	DOMINANT WAVES				
Z	T	S	OZ	PO4	SI03	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	28.0	35.40	4.5					514.5								
11	27.78	35.375	4.58					509.4								
50	27.47	35.387	4.56					499.0								
108	26.04	35.371	4.03					456.7								
132	21.97	34.954	3.45					371.8								
167	20.28	35.599	3.08					281.2								
215	14.64	35.030	3.28					192.9								
241A	13.20	34.945	3.17					170.4								
261	12.88	34.905	3.21					167.2								
317	11.35	34.844	2.42					143.8								
340A	10.74	34.797	1.78					136.7								
392A	9.22	34.687	1.90					120.2								
505A	7.56	34.706U	2.40													
825A	5.32	34.611	2.41					73.4								
1141A	3.92	34.568	2.34					61.9								

RV ARGO				NOVA EXPEDITION III												17
LATITUDE 1 00.15		LONGITUDE 179 08.0W		MO/DAY/YR 07/02/67		MESSENGER 0031		TIME GMT	BOTTOM 5494M	WIND 140	SPEED 08KT	WEATHER 1	DOMINANT WAVES 100 04 10			
Z	T	S	OZ	PO4	SI03	NU2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD	
0	28.1	35.37	4.7					519.8								
11	27.88	35.383	4.67					512.0								
84	27.60	35.363	4.51					504.7								
129	25.03	35.640	3.69					407.6								
220	14.48	35.071	3.27					186.6								
313	11.01	34.803	2.49					140.9								
383	9.60	34.73	1.97					123.0								
523	7.24	34.585	2.25					99.2								
854	5.15	34.563	2.15					75.1								
1048	4.34	34.561	2.28					66.6								

RV ARGO				NOVA EXPEDITION III												18			
LATITUDE 1 58.05				LONGITUDE 179 01.0W				MO/DAY/YR 07/02/67		MESSENGER 1210		TIME GMT	BOTTOM 5585M	WIND 090	SPEED 08KT	WEATHER 1	DOMINANT WAVES 130 04 08		
Z	T	S	OZ	PO4	SI03	NO2	NO3	DT	Z	T	S	OZ	SIGT	DT	DD				
0	28.1	35.37	4.4					519.8											
24	27.95	35.366	4.59					515.4											
96	27.82	35.361	4.62					511.7											
153	20.44	35.619	2.97					283.8											
209	15.18	35.207	3.04					191.2											
282	11.14	34.808	2.57					142.8											
374	10.02	34.759	1.92					127.5											
512	7.38	34.593	2.10					100.5											
1032	4.61	34.557	2.12					69.7											

A1 CAST 1.

RV ARGO

NOVA EXPEDITION III

19

LATITUDE 4 01.45		LONGITUDE 178 44.5W		MO/DAY/YR 07/03/67		MESSENGER TIME 0015 1033GMT		BOTTOM 5964M	WIND 150	SPEED 08KT	WEATHER 1	DOMINANT WAVES			
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	29.0	35.40	4.7					546.2	0	29.0	35.40	4.7	22.385	546.2	0
11A	28.73	35.399	4.57					537.6	10	28.75	35.399	4.58	22.468	538.3	.054
54A	28.64	35.405	4.66					534.3	20	28.71	35.400	4.59	22.482	536.9	.108
87A	28.16	35.556	4.49					508.3	30	28.69	35.401	4.61	22.490	536.2	.162
145A	25.66	36.048	3.56					396.7	50	28.65	35.404	4.65	22.506	534.6	.269
206A	17.71	35.403	2.64					233.0	75	28.39	35.489	4.58	22.653	520.5	.402
315A	9.70	34.736	2.27					124.1	100	27.91	35.716	4.31	22.985	488.8	.529
419A	8.48	34.654	1.96					111.5	125	26.92	35.939	3.92	23.472	442.3	.646
641A	6.14	34.568	2.32					86.3	150	25.06	35.998	3.47	24.096	382.8	.751
834A	4.98	34.544	2.33					74.7	200	18.56	35.465	2.72	25.507	248.5	.912
1054A	4.20	34.583	2.31					63.5	250	13.58	35.066	2.49	26.343	168.9	1.020
1720B	2.52	34.646	2.72					43.5	300	10.36	34.812	2.32	26.762	129.2	1.098
2098B	2.11	34.648	2.92					40.1	400	8.70	34.668	2.00	26.925	113.8	1.226
3246B	1.57	34.709	3.54					31.5	500	7.54	34.611	2.03	27.055	101.4	1.342
3924B	1.37	34.713	3.96					29.9	600	6.52	34.577	2.22	27.172	90.4	1.447
4623C	1.26	34.705	4.42					29.7	700	5.72	34.556	2.32	27.259	82.2	1.542
4655B	1.26	34.707	4.51					29.6	800	5.14	34.546	2.33	27.320	76.3	1.630
4950B	1.24	34.729	4.58					27.8	1000	4.36	34.572	2.31	27.429	66.0	1.792
5246B	1.27	34.708	4.55					29.6	1200	3.74	34.604	2.37	27.519	57.5	1.936
5540B	1.31	34.731	4.64					28.1	1500	2.95	34.635	2.55	27.620	48.0	2.125
5829C	1.34	34.706U	4.68						2000	2.19	34.649	2.87	27.697	40.7	2.396
5836B	1.34	34.725	4.64					28.8	2500	1.85	34.669	3.13	27.740	36.5	2.639
5931B	1.36	34.724	4.62					29.0	3000	1.63	34.696	3.40	27.778	33.0	2.865
									3500	1.48	34.713	3.69	27.802	30.7	3.078
									4000	1.35	34.712	4.01	27.811	29.9	3.285
									4500	1.27	34.706	4.34	27.812	29.8	3.491
									5000	1.24	34.726	4.57	27.830	28.1	3.695
									5500	1.30	34.728	4.63	27.827	28.3	3.902

RV ARGO

NOVA EXPEDITION III

20

LATITUDE 7 42.9S		LONGITUDE 178 24.1W		MO/DAY/YR 07/04/67		MESSENGER TIME 0750 0250GMT		BOTTOM 6027M	WIND 080	SPEED 08KT	WEATHER 1	DOMINANT WAVES 140 04 10			
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	28.7	35.49	4.6					530.1	0	28.7	35.49	4.6	22.553	530.1	0
10A	28.58	35.467	4.58					528.0	10	28.58	35.467	4.58	22.576	528.0	.053
52A	28.60	35.487	4.60					527.2	20	28.58	35.471	4.58	22.578	527.8	.106
83A	28.60	35.56	4.3					521.9	30	28.59	35.476	4.59	22.580	527.6	.159
138A	27.50	35.778	4.06					471.8	50	28.60	35.486	4.60	22.584	527.2	.264
195A	23.04	36.095	3.56					318.4	75	28.60	35.541	4.38	22.625	523.3	.396
300A	13.98	35.026	2.46					179.8	100	28.26	35.640	4.22	22.811	505.4	.526
398A	8.80	34.666	2.40					115.3	125	27.86	35.733	4.11	23.013	486.1	.651
614A	6.44	34.574	2.67					89.6	150	26.74	35.863	3.97	23.472	442.3	.769
800A	5.30	34.556	2.48					77.3	200	22.58	36.052	3.50	24.872	308.9	.960
1015A	4.40	34.546	2.43					68.3	250	18.14	35.585	2.93	25.704	229.7	1.099
1537B	2.80	34.613	3.14U					48.3	300	13.98	35.026	2.46	26.230	179.8	1.205
2045B	2.14		3.16						400	8.78	34.665	2.40	26.911	115.1	1.361
2536B	1.79	34.671	3.28					36.0	500	7.69	34.614	2.53	27.037	103.2	1.478
2974B	1.65	34.684	3.50					34.0	600	6.59	34.579	2.65	27.163	91.3	1.584
3363B	1.54	34.684	3.71					33.2	700	5.84	34.563	2.60	27.249	83.1	1.680
3751B	1.45	34.696	3.96					31.7	800	5.30	34.556	2.48	27.310	77.3	1.770
4141B	1.28	34.710	4.47					29.5	1000	4.45	34.546	2.43	27.399	68.9	1.936
4336B	1.26	34.710	4.62					29.4	1200	3.73	34.562	2.53	27.487	60.6	2.085
4531B	1.28	34.711	4.50					29.4	1500	2.88	34.607	2.71	27.603	49.5	2.281
4726B	1.27	34.709	4.49					29.5	2000	2.17	34.659	3.12	27.706	39.8	2.553
4923B	1.26	34.708	4.54					29.5	2500	1.81	34.672	3.27	27.746	36.0	2.791
5067C		34.725U	4.63						3000	1.64	34.684	3.51	27.768	33.9	3.017
5118B	1.28	34.717	4.64					29.0	3500	1.51	34.688	3.78	27.780	32.8	3.238
5314B	1.30	34.706	4.61					29.9	4000	1.34	34.706	4.29	27.807	30.2	3.450
5509B	1.30	34.709	4.64					29.7	4500	1.28	34.711	4.52	27.816	29.4	3.655
5801B	1.36	34.715	4.63					29.7	5000	1.27	34.712	4.59	27.817	29.2	3.862
5865C	1.38	34.708	4.71					30.3	5500	1.30	34.709	4.64	27.812	29.7	4.076
5902B	1.36	34.710	4.72					30.0							

RV ARGO

NOVA EXPEDITION III

21

LATITUDE 9 27.6S		LONGITUDE 178 39.5W		MO/DAY/YR 07/05/67		MESSENGER TIME 1526 1936GMT		BOTTOM 5036M	WIND 140	SPEED 19KT	WEATHER 1	DOMINANT WAVES 140 06 09			
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	28.4	34.60	4.5					584.6							
9A	28.40	34.593	4.59					585.1							
50A	28.40	34.593						585.1							
117A	28.32	35.781	3.47					435.6							
190A	22.24	35.974	3.49					305.3							
287A	15.62	35.201	3.03					205.3							
479A	7.98	34.592	3.00					108.9							
784A	5.14	34.520	3.06					78.2							
4631C	1.28	34.712	4.54					29.3							
4844C	1.28	34.709	4.58					29.6							

A1 CAST II.

B1 CAST III.

C1 CAST I. HEAT PROBE LOWERING WITH TWO HANSEN BOTTLES ATTACHED.

RV ARGO				NOVA EXPEDITION V										H 47			
LATITUDE			LONGITUDE	MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES					
27 46.7S			156 07.3E	08/27/67	0513		GMT	4794M	310	35KT	2	14 08					
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD		
1	19.76	35.67						263.0									
474	12.12	35.06						141.7									
800	6.90																
1133	4.54																
1500	3.17	34.57						54.7									

RV ARGO				NOVA EXPEDITION V										H 59			
LATITUDE			LONGITUDE	MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES					
26 54.7S			166 06.2E	08/30/67	1315		GMT	3574M	060	13KT	1						
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD		
1	21.42	35.50						317.8									
11	21.50	35.50						319.9									
110	21.08	35.61						300.9									
119		35.64															
129	20.70	35.64						280.0									
189	19.48	35.62						259.6									
492	12.80	35.08						152.9									
982	5.40	34.87 U															
1469	3.18	34.67 U															
1958	2.37	34.64						42.7									
2446	2.03	34.69						36.3									
2926	1.95	34.69						35.7									
3419	1.92	34.70						34.7									

RV ARGO				NOVA EXPEDITION V										H 67			
LATITUDE			LONGITUDE	MO/DAY/YR	MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES					
29 56.0S			176 43.5E	09/06/67	0013		GMT	4260M			2						
Z	T	S	02	P04	S103	N02	N03	DT	Z	T	S	02	SIGT	DT	DD		
1	17.70	35.65						214.8									
12	17.67	35.64						214.8									
198	16.22	35.54						189.3									
392	13.40 A	35.17						157.8									
635	9.14 B	34.67						120.2									
645	9.02	34.73 U															
655	8.83	34.66 U															
877	6.23	34.62 U															
1169	4.19	34.49						70.4									
1656	2.72	34.62						47.1									
2144	2.13	34.67						38.6									
2631	1.92	34.68						36.2									
3117	1.85	34.69						35.0									
3603	1.86	34.69						35.1									
4091	1.92	34.69						35.5									

A) MEAN VALUE OF 13.35 AND 13.46 DEGREES.
 B) MEAN VALUE OF 9.10 AND 9.19 DEGREES.

RV ARGO

NOVA EXPEDITION VI

1

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
31 45.0S		177 15.0W		09/20/67		0540		0010GMT	9992M							
Z	T	S	O2	PD4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD	
10	17.62	35.632	5.27					214.2	0	17.62	35.632		25.867	214.2	0	
35	17.42	35.623	5.29					210.2	10	17.62	35.632	5.27	25.867	214.2	.021	
48	17.35	35.630	5.58					208.1	20	17.55	35.627	5.28	25.880	213.0	.043	
88	16.92	35.618	5.24					199.2	30	17.47	35.624	5.29	25.898	211.3	.064	
126	16.02	35.505	4.84					187.4	50	17.34	35.631	5.56	25.935	207.8	.106	
166	15.44	35.490	5.16					176.0	75	17.11	35.630	5.35	25.990	202.5	.158	
204	14.68	35.394	5.03					167.1	100	16.64	35.581	5.08	26.063	195.6	.209	
289	13.16	35.21	4.75					150.2	125	16.04	35.508	4.85	26.146	187.8	.257	
381	11.52	35.004	4.74					135.0	150	15.66	35.495	5.01	26.223	180.4	.305	
475	9.76	34.759	4.50					123.4	200	14.76	35.405	5.05	26.354	167.9	.394	
590	8.12	34.569	4.65					112.6	250	13.84	35.292	4.86	26.464	157.5	.479	
718A	6.72	34.436	4.86					103.4	300	12.97	35.186	4.75	26.562	148.2	.559	
946R	5.40	34.452U	4.55U						400	11.15	34.952	4.69	26.729	132.4	.708	
965A	5.15	34.416	4.41					86.1	500	9.36	34.710	4.51	26.852	120.7	.845	
1053P	4.58	34.425	4.22					79.3	600	7.99	34.555	4.67	26.946	111.8	.971	
1667B	2.82	34.539	3.82					54.0	700	6.89	34.450	4.84	27.022	104.6	1.090	
1947B	2.52	34.607	3.48					46.4	800	6.34	34.447	4.78	27.093	97.8	1.202	
2064B	2.43	34.622	3.67U					44.6	1000	4.86	34.410	4.33	27.246	83.4	1.405	
2516R	2.11	34.655	3.42					39.6	1200	3.91	34.447	4.07	27.377	70.9	1.581	
3096B	1.80	34.699	4.06					33.9	1500	3.03	34.506	3.87	27.510	58.4	1.806	
3212B	1.76	34.723	4.14					31.8	2000	2.48	34.615	3.47	27.645	45.5	2.120	
4074B	1.16	34.728	4.80					27.4	2500	2.12	34.655	3.42	27.707	39.7	2.389	
4864B	1.06	34.720	4.81					27.3	3000	1.84	34.688	3.94	27.755	35.1	2.635	
6005C	1.17	34.720	4.57					28.0	3500	1.56	34.724	4.39	27.806	30.3	2.855	
7000C	1.30	34.716	4.56					27.2	4000	1.21	34.728	4.75	27.833	27.7	3.049	
7992C	1.46	34.708	4.67					30.9	4500	1.11	34.724	4.81	27.838	27.3	3.235	
8587C		34.714	4.15U						5000	1.06	34.720	4.78	27.837	27.4	3.422	
9181C	1.67	34.714	4.53					31.4	5500	1.10	34.720	4.68	27.835	27.6	3.614	
9679C	1.75	34.714	4.50					32.4	6000	1.17	34.720	4.57	27.830	28.0	3.815	
9982C	1.82	34.734U	4.26						6500	1.23	34.719	4.57	27.825	28.5	4.027	
									7000	1.30	34.716	4.56	27.818	29.2	4.251	
									7500	1.38	34.712	4.62	27.809	30.0	4.489	
									8000	1.46	34.708	4.67	27.800	30.9	4.741	
									8500	1.55	34.710	4.62	27.795	31.3	5.009	
									9000	1.64	34.713	4.56	27.791	31.7	5.291	
									9500	1.72	34.714	4.51	27.786	32.2	5.587	

RV ARGO

NOVA EXPEDITION VI

2

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
31 11.0S		177 08.0W		09/24/67		1921		GMT	8774M	270	22KT	1	270 08 08			
Z	T	S	O2	PD4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD	
3335	1.62	34.761U	4.04													
4322	1.17	34.723	4.43					27.8								
5307	1.10	34.720	4.61					27.6								
6291	1.19	34.641U	4.59													
7274	1.34	34.70	4.09					30.7								
8256	1.50	34.71	4.40					31.0								

RV ARGO

NOVA EXPEDITION VI

2

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER		TIME	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
30 53.0S		176 49.0W		09/25/67		1222		1435GMT	8219M	270	22KT	1	270 08 08			
Z	T	S	O2	PD4	S103	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	DD	
8700	6.17	34.43	4.63					97.0								
1297E	3.66	34.47	3.96					66.8								
1737E	2.62	34.594	3.49					48.2								
3034E	1.78	34.708	3.89					33.1								
3965E	1.20	34.73	4.35					27.5								

- A) THE DEPTHS OF THE LAST TWO HANSEN BOTTLES OF CAST I WERE DETERMINED FROM AN EXTRAPOLATED DEPTH CURVE DUE TO MALFUNCTIONING OF THE UNPROTECTED REVERSING THERMOMETERS.
 B) CAST II. 9/20/67 0937 GMT.
 C) CAST III. 9/21/67 0010 GMT.
 D) CAST III. THESE DATA HAVE NOT BEEN LISTED WITH CAST I BECAUSE OF A CHANGE IN POSITION WHEN DIFFICULTY WAS EXPERIENCED WITH THE CAST.
 E) CAST II.

RV ARGO

NOVA EXPEDITION VI

4

LATITUDE 27 28.05			LONGITUDE 175 28.0E		MO/DAY/YR 09/27/67	MESSENGER TIME 0923 1421GMT			BOTTOM 4632M	WIND 160	SPEED 04KT	WEATHER 2	DOMINANT WAVES 160 03 12		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	20.30	35.559						284.6	0	20.30	35.559		25.127	284.6	0
35	20.09	35.601	5.20					276.2	10	20.24	35.571		25.152	282.2	.028
49	19.70	35.652	5.27					262.8	20	20.18	35.583		25.177	279.8	.057
99	18.62	35.673	4.89					234.8	30	20.12	35.595		25.202	277.4	.084
167	17.47	35.604	4.77					212.8	50	19.68	35.654	5.27	25.364	262.0	.119
226	16.25	35.500	4.64					192.8	75	19.10	35.682	5.12	25.536	245.7	.203
293	14.88	35.367	4.55					173.2	100	18.60	35.672	4.89	25.654	234.5	.264
391	12.69	35.103	4.43					149.1	125	18.17	35.657	4.82	25.750	225.4	.322
489	10.83	34.882	4.47					132.0	150	17.75	35.629	4.78	25.833	217.5	.378
605	8.66	34.639	4.58					115.3	200	16.80	35.548	4.70	26.001	201.5	.486
732	7.36	34.501	4.73					107.0	250	15.76	35.455	4.60	26.170	185.5	.586
888	6.00	34.419						95.8	300	14.72	35.348	4.54	26.319	171.3	.680
1056	4.90	34.432	4.26					82.2	400	12.51	35.082	4.43	26.572	147.3	.849
1173	3.92	34.470	4.02					69.2	500	10.60	34.854	4.48	26.753	130.1	.998
1467A	2.96	34.576	3.42					52.4	600	8.74	34.648	4.57	26.903	115.8	1.133
1899A	2.35	34.629	3.49					43.4	700	7.63	34.528	4.70	26.979	108.7	1.257
2186A	2.12	34.655	3.50					39.6	800	6.73	34.454	4.69	27.046	102.3	1.374
2301A	2.08	34.662	3.51					38.8	1000	5.27	34.420	4.40	27.206	87.1	1.587
2378A	2.02	34.675	3.54					37.4	1200	3.78	34.481	3.95	27.418	67.1	1.763
2812A	1.90	34.676	3.77					36.4	1500	2.89	34.584	3.43	27.584	51.4	1.971
3248A	1.86	34.688	3.59					35.2	2000	2.25	34.640	3.49	27.684	41.8	2.254
3346A	1.85	34.69	3.56					35.0	2500	1.96	34.673	3.62	27.734	37.1	2.503
3463A	1.84	34.681	3.62					35.6	3000	1.88	34.681	3.71	27.747	35.9	2.744
3707A	1.86	34.690	3.65					35.1	3500	1.84	34.682	3.62	27.751	35.6	2.987
4170A	1.90	34.680	3.66					36.1	4000	1.88	34.685	3.66	27.750	35.6	3.239
4597A	1.95	34.684	3.66					36.2	4500	1.94	34.683	3.66	27.744	36.2	3.503

RV ARGO

NOVA EXPEDITION VI

5

LATITUDE 23 43.55			LONGITUDE 176 09.0E		MO/DAY/YR 09/29/67	MESSENGER TIME 1817 0342GMT			BOTTOM 4438M	WIND 130	SPEED 11KT	WEATHER 1	DOMINANT WAVES 130 03 06		
Z	T	S	O2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	20.90	35.472						306.3	0	20.90	35.472		24.899	306.3	0
20	20.87	35.470	5.05					305.6	10	20.88	35.471		24.903	305.9	.031
49	20.05	35.615	4.95					274.2	20	20.87	35.470	5.05	24.906	305.6	.061
98	18.60	35.620	4.54					238.2	30	20.64	35.515	5.03	25.003	296.4	.091
166	17.84	35.631	4.47					217.4	50	20.02	35.616	4.94	25.246	273.3	.149
214	16.60	35.513	4.32					199.2	75	19.24	35.635	4.73	25.463	252.6	.215
291	15.08	35.392	4.53					175.5	100	18.58	35.622	4.54	25.622	237.5	.277
388	13.12	35.180	4.38					151.6	125	18.28	35.638	4.51	25.709	229.3	.336
484	10.5	34.806	4.30					132.0	150	18.01	35.639	4.49	25.778	222.7	.394
598	8.14	34.562	4.54					113.4	200	16.98	35.554	4.36	25.962	205.2	.504
725	6.56	34.435	4.68					101.5	250	15.86	35.458	4.40	26.151	187.2	.606
878	5.46	34.400	4.50					90.8	300	14.91	35.378	4.52	26.300	173.1	.700
1043	4.28	34.443	4.09					74.9	400	12.80	35.132	4.37	26.554	149.0	.871
1158	3.68	34.50	3.49					64.7	500	10.12	34.760	4.33	26.765	129.0	1.021
1555A	2.77	34.595	3.42					49.4	600	8.11	34.559	4.54	26.932	113.1	1.152
1838	2.40	34.627	3.49					43.9	700	6.80	34.452	4.67	27.035	103.3	1.271
1945A	2.29	34.644	3.41					41.8	800	5.97	34.407	4.63	27.110	96.3	1.382
2289A	2.06	34.656	3.42					39.1	1000	4.57	34.425	4.23	27.290	79.2	1.578
2402A	2.00	34.667	3.46					37.8	1200	3.53	34.515	3.48	27.470	62.1	1.739
2773A	1.87	34.680	3.41					35.9	1500	2.83	34.590	3.43	27.595	50.3	1.937
3019A	1.84	34.675	3.40					36.0	2000	2.24	34.648	3.41	27.691	41.2	2.215
3263A	1.84	34.685	3.57					35.3	2500	1.96	34.674	3.45	27.735	37.0	2.463
3460A	1.84	34.688	3.56					35.1	3000	1.84	34.676	3.40	27.746	36.0	2.703
3578A	1.84	34.679	3.58					35.7	3500	1.84	34.686	3.57	27.754	35.3	2.946
4052A	1.87	34.681	3.59					35.8	4000	1.86	34.681	3.59	27.748	35.8	3.197
4423A	1.92	34.677	3.61					36.5							
4426A	1.91	34.684	3.56					35.9							

A) CAST I.

B) TEMPERATURE INFERRED FROM PRESSURE THERMOMETER AND WIRE LENGTH.

RV ARGO

NOVA EXPEDITION VI

6

LATITUDE			LONGITUDE			MO/DAY/YR		MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES	
21 49.55			177 58.0E			09/30/67		2100 0040GMT		4145M	120	11KT	1	120 03 06	
Z	T	S	C2	P04	S103	N02	N03	DT	Z	T	S	O2	SIGT	DT	DD
0	23.5	35.356						384.5	0	23.5	35.356		24.078	384.5	
69	23.16	35.35	4.89					375.5	10	23.45	35.355		24.092	383.2	.038
119	22.30	35.554	4.73					337.3	20	23.40	35.354		24.106	381.9	.077
156	21.78	35.616	4.48					318.9	30	23.35	35.353		24.119	380.6	.115
200	20.89	35.655	4.10					292.8	50	23.25	35.351		24.147	378.0	.191
271	18.60	35.60	4.22					239.7	75	23.07	35.373	4.88	24.218	371.2	.285
359	16.44	35.368	4.16					206.7	100	22.65	35.474	4.81	24.414	352.5	.377
448	13.52	35.097	4.21					165.5	125	22.22	35.567	4.70	24.607	334.1	.464
674	7.1	34.469	4.54					105.9	150	21.87	35.609	4.53	24.737	321.7	.547
907	4.98	34.410	4.16					84.7	200	20.89	35.655	4.10	25.041	292.8	.704
1151A	3.86	34.480	3.71					67.9	250	19.31	35.627	4.18	25.440	254.8	.845
1634A	2.76	34.591	3.52					49.6	300	17.89	35.538	4.21	25.730	227.2	.970
2115A	2.22	34.65	3.43					40.8	400	15.13	35.241	4.17	26.148	187.6	1.188
2596A	1.95	34.673	3.52					37.0	500	11.79	34.902	4.30	26.573	147.2	1.368
2836A	1.88	34.68	3.53					36.0	600	8.89	34.625	4.45	26.862	119.8	1.513
3076A	1.85	34.680	3.60					35.7	700	6.72	34.451	4.52	27.045	102.4	1.635
3318A	1.84	34.667	3.55					35.1	800	5.61	34.412	4.38	27.159	91.6	1.743
3560A	1.84	34.684	3.57					35.4	1000	4.46	34.431	3.98	27.306	77.7	1.932
3808A	1.85	34.687	3.58					35.2	1200	3.70	34.494	3.69	27.436	65.4	2.095
4056A	1.87	34.688	3.58					35.3	1500	2.96	34.567	3.57	27.564	53.2	2.303
									2000	2.31	34.641	3.44	27.680	42.2	2.593
									2500	1.99	34.671	3.50	27.731	37.5	2.846
									3000	1.86	34.680	3.58	27.748	35.8	3.086
									3500	1.84	34.685	3.56	27.754	35.3	3.328
									4000	1.86	34.688	3.58	27.754	35.3	3.578

A) CAST 1.

B) TEMPERATURE INFERRED FROM PRESSURE THERMUMETER AND WIRE LENGTH.

LITERATURE CITED

- Bendschneider, K. and R. J. Robinson, 1952. A new spectrophotometric method for the determination of nitrite in sea water. *J. Mar. Res.*, 11: 87-96.
- Carpenter, J. H., 1965. The Chesapeake Bay Institute technique for Winkler dissolved oxygen method. *Limnol. and Oceanogr.*, 10: 141-143.
- Klein, Hans T., 1973. A new technique for processing physical oceanographic data. SIO Ref. 73-14.
- Matthews, D. J., 1939. Tables of the velocity of sound in pure water and sea water for use in echo-sounding and sound-ranging. Second Edition. Hydrographic Department, Admiralty, H. D. 282: 52p.
- Murphy, J. and J. P. Riley, 1962. A modified single solution method for the determination of phosphate in natural waters. *Anal. Chem. Acta.*, 27: 31.
- Rattray, M., 1962. Interpolation errors and oceanographic sampling. *Deep-Sea Res.*, 9: 25-37.
- University of Washington, 1960. Univ. of Wash. Dept. of Oceanogr., Oct. 1960. Tech. Rep. No. 66. UW Ref. 60-18.
- Yentsch, C. S. and D. W. Menzel, 1963. A method for the determination of phytoplankton chlorophyll and phaeophytin by fluorescence. *Deep-Sea Res.*, 10: 221-231.

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